NOV 28 1940

Thanksgiving

In true spirit of the season, we feel it very fitting to pause and give thanks for the friendship and cooperation of the Oil Industry so long enjoyed.

Hughes Tool Company

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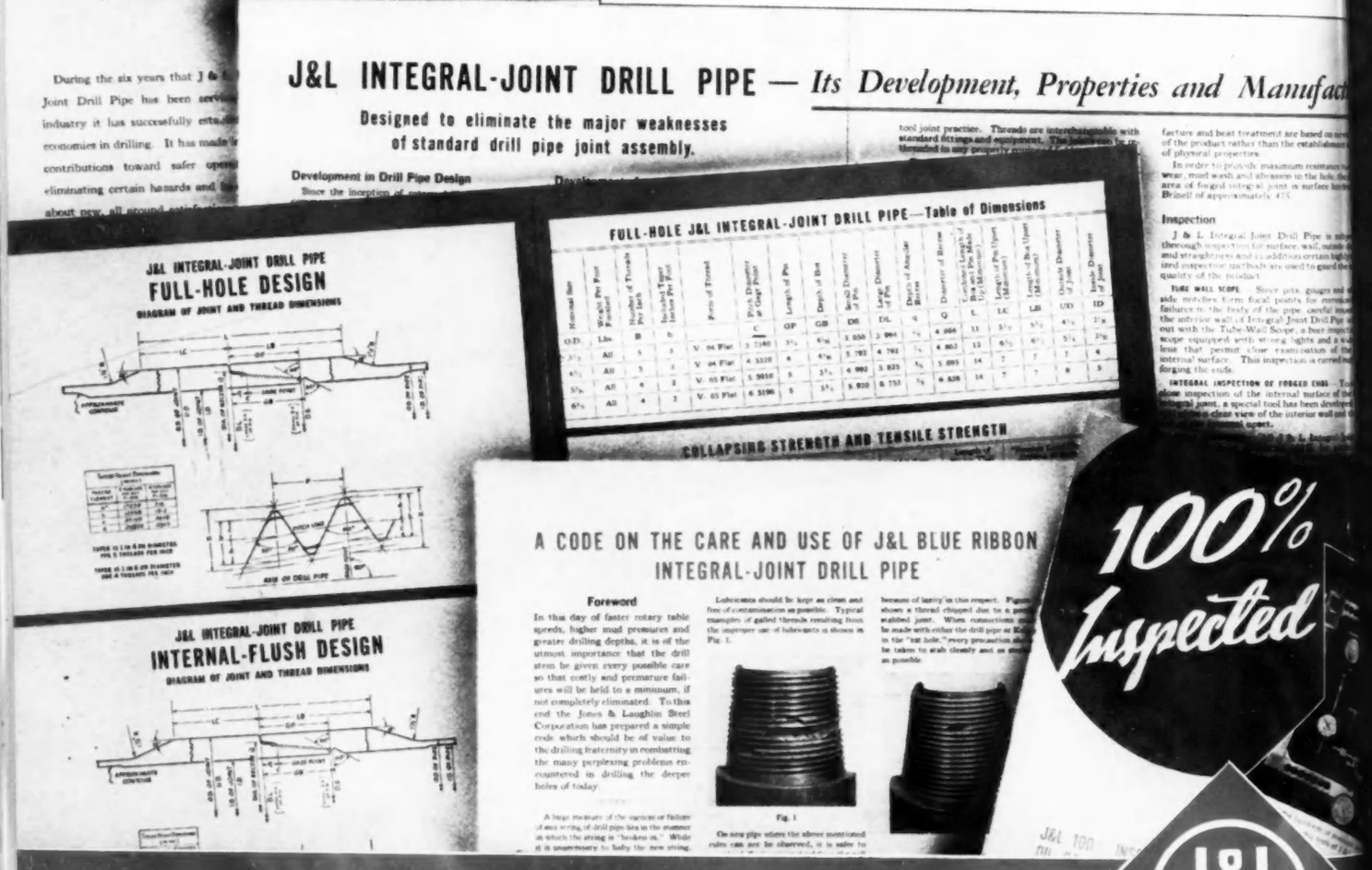
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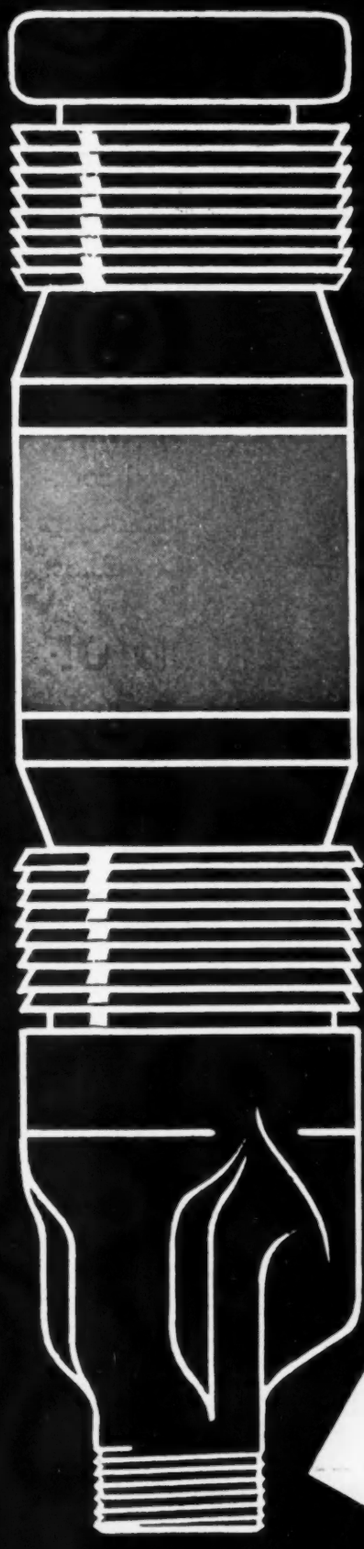

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LOOKING AHEAD

WITH THE EDITOR

OIL HAS REACHED A STAGE in the affairs of the nation where every man, woman and child feels that he has a stake in it. Therefore, it is a fair question to ask "How long is this supply going to continue under our present range of prices?" "What about our future reserves?" The public has a right to ask it and we in the oil industry should face it—not spasmodically and not in a defensive mood, but actively, continuously and intelligently.

There have been many articles written extolling the unlimited supply of petroleum in the United States, most of which have discussed the increasing volume of known unproduced reserves and the rising rate of discovery. This situation has caused people to assert "that is one pool closer to the end" as each new area is discovered. While it is true that there is one less field, each new discovery actually pushes the horizon farther back, for they open new favorable territory or horizons that open up untold possibilities for future discoveries.

The problem is not a question of the quantity of ultimate future oil reserves, for it seems as if there is abundant evidence that it is adequate for expanding demands for a long time to come, but rather, how are we going to find it? And particularly under our present economy?

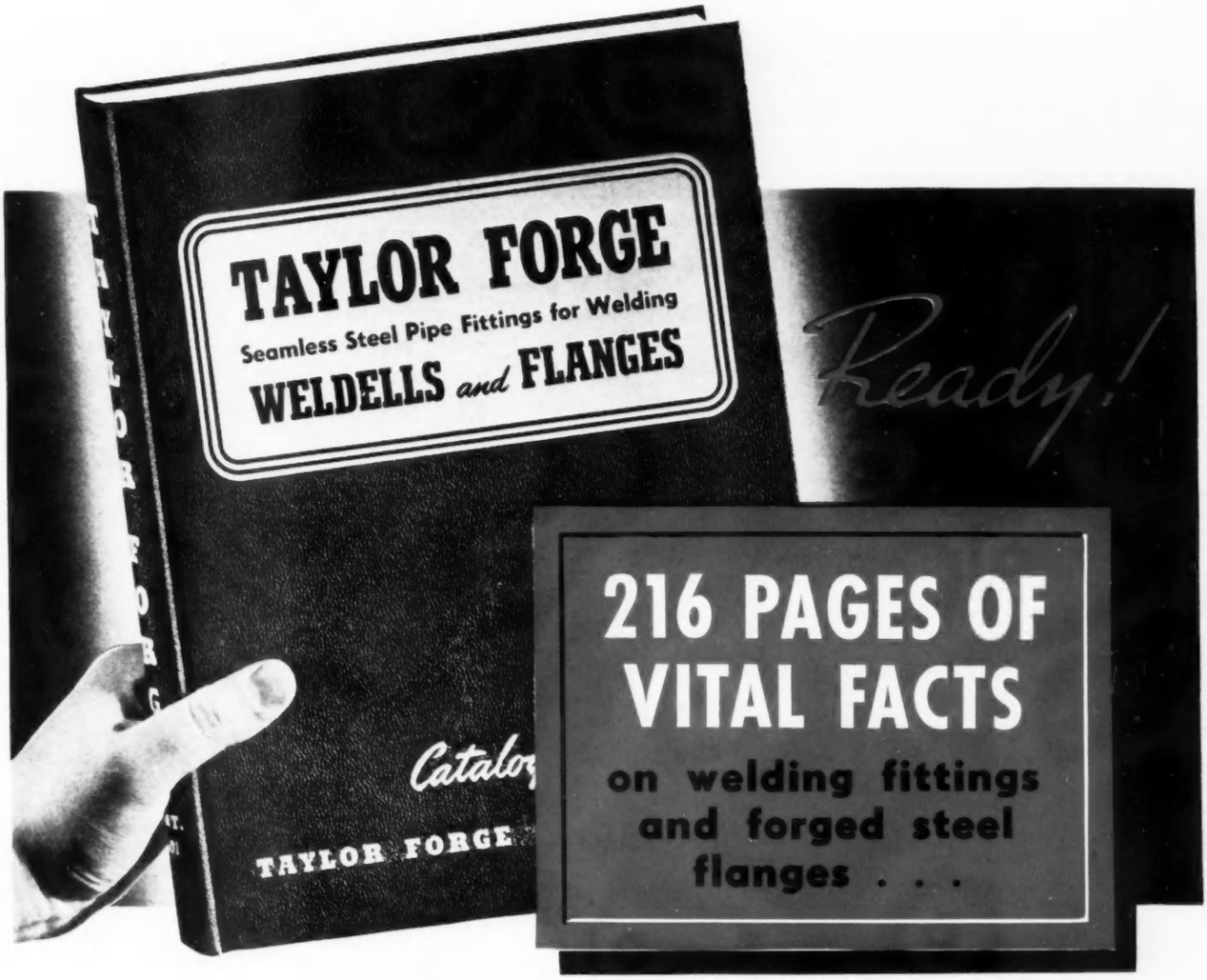
Under the title of "Some Geological Factors Concerning Our Future Oil Reserves," A. I. Levorsen, prominent consulting geologist and former president of the American Association of Petroleum Geologists, presented some very interesting comments on this phase at the annual meeting of the Independent Petroleum Association of America. His talk is to be presented in full in a forthcoming issue.

Does geology have anything to offer with which to replace the current discovery methods as they become inadequate?

Geologist Levorsen asserts that it does, and that the answer "lies chiefly in the enlarged application of what we call sedimentation and stratigraphy to our geological thinking, of which we have been adding large doses in recent years . . . Another element in our thinking, which is altering our analysis of unexplored territory comes in a change in our ideas as to what the necessary factors are in order to have an oil province . . .

"Taken as a whole," he declares, "the trend is toward an increase in our favorable territory rather than a decrease as each year's discoveries are withdrawn."

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.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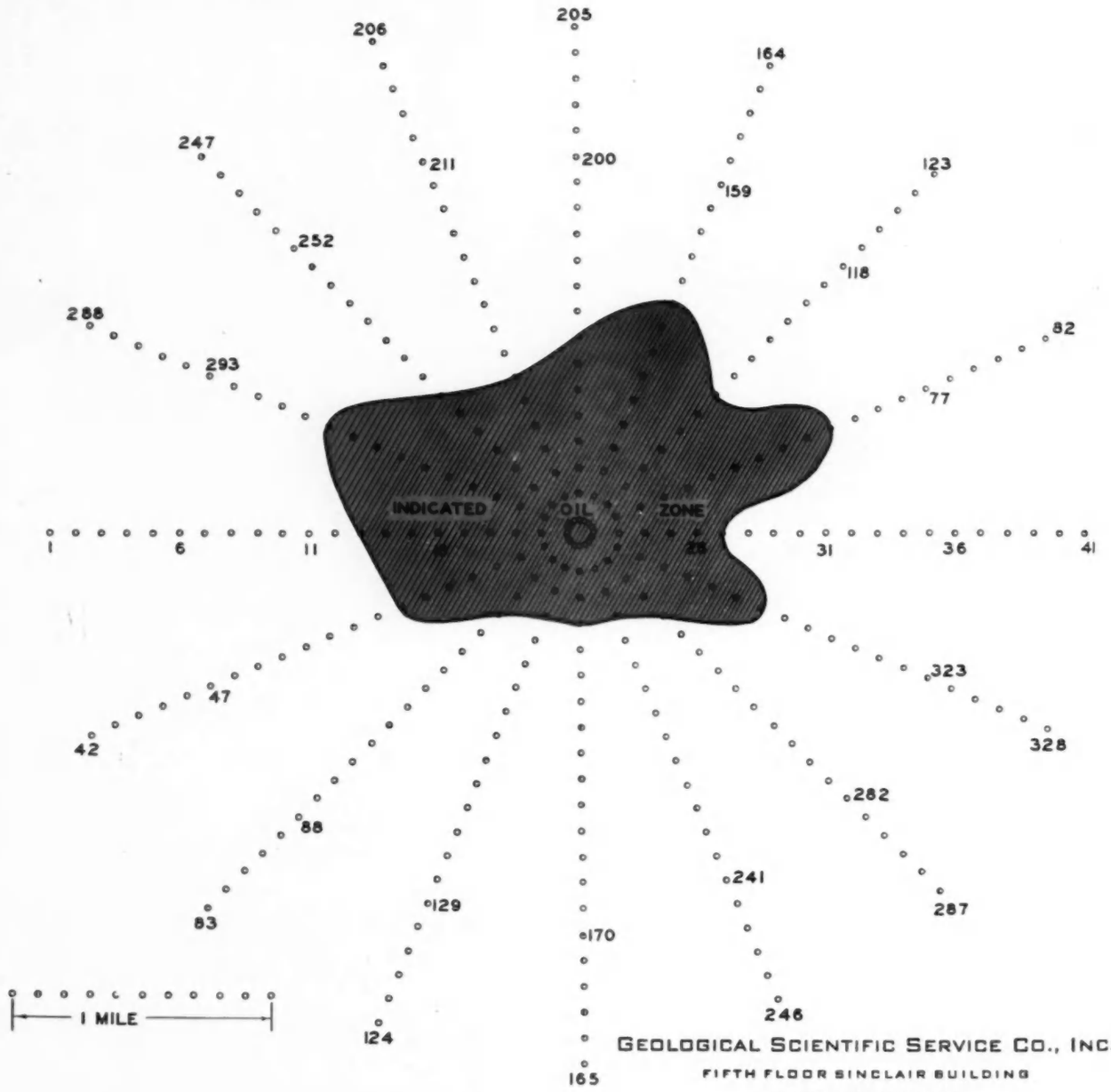

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THE OIL WEEKLY

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The Oil Man's Calendar

DEC. 5- 6	**Mid-Continent Oil & Gas Association, Annual Joint Meeting of Standing Committee on State and Local Taxation, and Standing Committee on Federal Income and Excise Taxation, Tulsa.**
6	**American Petroleum Institute, Illinois Basin Chapter, Salem.**
9-14	**National Asphalt Conference, Dallas.**
12-13	**Petroleum Electric Power Association, Baton Rouge.**
16	**Mid-Continent Oil & Gas Association, Annual Meeting of General Board of Directors, Tulsa Club Roof, Tulsa, Okla.**
1941 FEB. 22	**North Texas Oil & Gas Association, Wichita Falls.**
24-25	**Liquified Petroleum Gas Association, Chicago.**
27-28	**American Petroleum Institute, Division of Production, Southwestern District, Shreveport.**
MAR. 11	**American Petroleum Institute, Division of Production, Spring Meeting, Pacific Coast District, Los Angeles.**
APRIL 2- 4	**American Association of Petroleum Geologists, Twenty-sixth Annual Meeting, Houston.**
17-18	**American Petroleum Institute, Division of Production, Eastern District, Pittsburgh.**
23-25	**Petroleum Industry Electrical Association, Tulsa.**
23-25	**Natural Gasoline Association of America, Dallas.**

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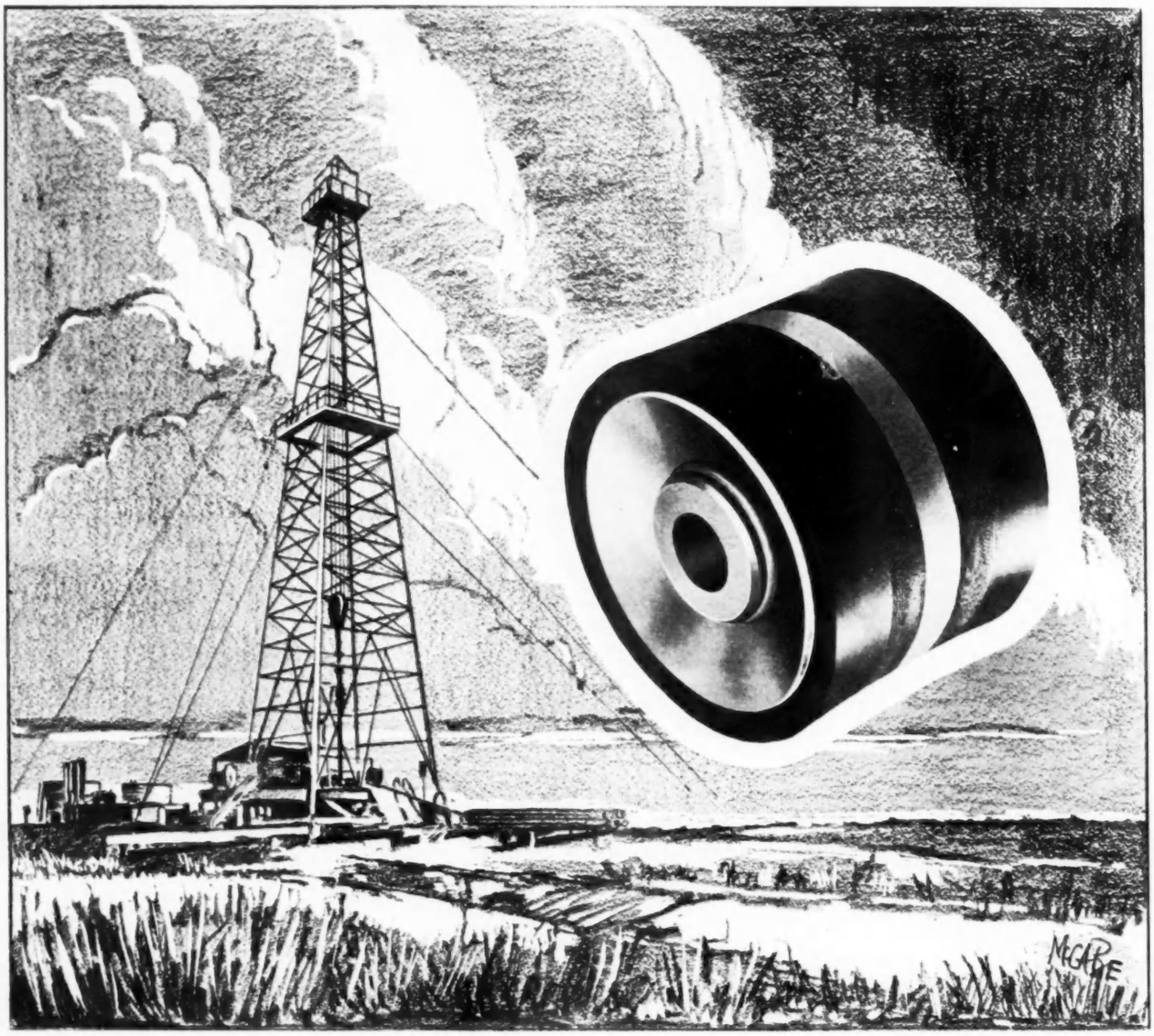

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The Changing Panorama

Warning . . .

A warning, which is as plain as a warning can be, has been given the oil industry in Texas in a letter mailed last Saturday by Humble Oil & Refining Company to oil producers from whom it is purchasing oil. That the situation in Texas affects other oil-producing states goes without saying. The letter, signed by the president of the Humble, described a situation which, in language best understood by oil producers, shortly means a reduction in the price of crude oil.

The letter itself does not lay the blame for the present conditions in Texas on the door-step of any particular group—it sets out what it describes as a condition and says that a continuation of such conditions cannot fail to bring destruction to proration and to the price structure, without necessarily specifically referring to price. However, in correspondence between the Humble and the Texas Railroad Commission, which sometime ago was made public through the press, the Humble flatly laid the blame on grants of special allowables, and no one acquainted with the sequence of events for the past few months will deny either the existence of the special allowables, or of their effect on the price structure.

In its letter to producers from which it buys, Humble goes further and says that the foundation of proration is threatened and points out that without a fair degree of ratable taking between pools, proration could easily be a vehicle for profit for a few operators at the expense of the other producers in the state.

Colonel Ernest Thompson, a member of the Texas Railroad Commission, issued a statement, published in THE OIL WEEKLY a short time ago, in which he said that the commission had only two bases for determining the allowable of a field—avoidance of waste and market demand for the crude in that particular crude. Humble attorneys evidently are not in agreement with the Colonel in his interpretation of the law, and while we have talked with numerous independent operators who think that maybe the Colonel is right in a strict sense in his statement that market demand for the oil in a particular field can be used to determine its allowable, they also feel that the commission, for some reason not apparent, is deliberately pursuing a course, different from that pursued in the past under the same law, toward a goal which will crack up proration and such benefits to the industry and the public as it may have gained.

And while we are on the subject, it might be well to mention that although the commission has granted the special allowables, oil companies have requested them. We recently talked with an official of a large purchasing company, not the Humble, who said that his company had been importuned many times within the past few weeks to issue letters for presentation to the commission saying that it would take the additional crude from a field, if special allowables could be granted. Armed with such a letter, the producers felt that they would have no difficulty in securing the special allowables necessary! He said that such requests for such letters had been steadfastly refused.

Such a situation speaks no good for the producer who wished to present a request under false pretenses, but it also speaks poorly for the commission as to the ease with which it can be pursuaded to disrupt proration further.

In a situation where the prosperity of a great industry is at stake, it is not surprising that bitter feelings should be engendered—that the claim has been made that personal resentment on the part of a commission member, for being removed as Texas representative of the Interstate Oil Compact, is leading to a desire to sabotage the Compact and Texas oil along with it. We do not believe that Colonel Thompson is motivated by such reasons, nor do we agree with those who say that ambition on his part to become affiliated with federal oil dictatorship is at the bottom of his actions on special allowables. Even if the Colonel had such an idea in his head—which we do not credit—he is only one of a commission of three who are responsible. But we do say that the net results of the commission's actions, and the apparent carelessness with which they are handling affairs, will have the effect of sabotaging the Compact and proration in Texas. We predict, too, that it will have a great bearing on the question as to whether or not the Texas Railroad Commission should be taken out of politics through the substitution of an appointive commission to the present inefficient elected one.

Loan to Argentina . . .

United States tax money will build the Argentine Government pipe line from the Mendoza field to Buenos Aires, a $20,000,000 loan having been earmarked by the American government for that purpose. This line's construction should materially increase operations in this newly discovered Argentinian field—reported to be the best find in Argentina to date.

Argentina has been a good customer of American manufacturers of oil country equipment, and while it has imported little, if any, refined products from the United States in recent years, American companies have been active in developing Argentinian petroleum resources, and have been large sellers of petroleum products within the country. Argentina still imports a considerable part of her supply of oil. In the few years prior to the beginning of World War No. 2, however, European manufacturers were beginning to get a material share of the Argentinian imports of oil country equipment, Germany faring pretty well in a barter exchange. The war stopped that, but only a few months ago, German salesmen in Argentina were reported to be offering delivery on tubular goods and other steel products to be accomplished by October 15, 1940. No such deliveries were made, however.

An Argentinian oil commission, headed by some of the most prominent men in the Argentinian government oil circles, has just returned to Buenos Aires from the United States. The commission made extensive studies of American methods and equipment, and was in the United States several months.

Surplus Gasoline Chief Defect In Oil Situation

THE industry's situation continues to be featured by a weak gasoline market, which likely will prevail indefinitely, although that disadvantage is partially offset by firm markets for other products.

Demand for petroleum is comparatively good, despite greatly curtailed exports, and inventories of most products except gasoline are satisfactory, although stocks of the latter product are seriously excessive.

Current operations of the industry, in the oil fields and at the refineries, are reasonably moderate, although runs to stills have been larger than desirable, with the result that prospects for improving the gasoline inventory situation have not been bright.

Totaling approximately 80,000,000 barrels, gasoline stocks are regarded as excessive by 15,000,000 barrels, and it is believed more likely than not that this surplus will be carried through the winter undiminished, or possibly augmented.

In recent years, the industry has been accumulating around 25,000,000 barrels of gasoline in storage during the fall-winter period, and if a similar build-up occurs this season, the oil companies will go into the spring-summer period of large consumption with 105,000,000 barrels of gasoline on hand.

That quantity would be 20,000,000 barrels in excess of needed working stocks even at the beginning of spring, as past experience has indicated that 85,000,000 barrels of gasoline in storage March 31, 1941, would be adequate for assuring prompt and efficient satisfaction of any requirements of consumers.

Last spring the gasoline stocks reached an all-time peak of 103,710,000 barrels, on March 31, and there was practically no withdrawal from storage until after April 30.

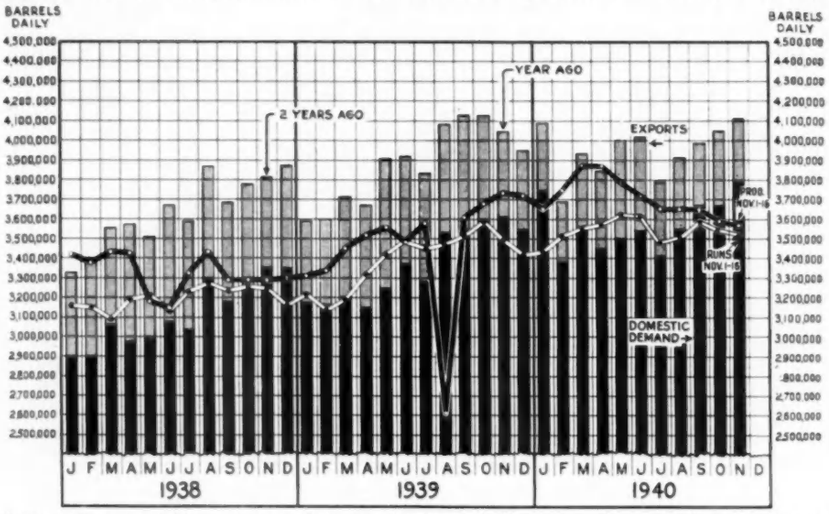
It is quite possible, however, that the gasoline stocks at the end of the coming winter may equal or exceed that peak.

Consequently, the outlook for the market for gasoline, principal product of the industry, is not at all promising.

During the past year prices of gasoline have been greatly depressed, because of the surplus quantities in the storage tanks, and an extension of the price situation through another year is threatened.

An accompanying table shows the extremely low levels to which service station prices of gasoline have declined, the figures being average prices per gallon in 50 rep-

DEMAND FOR ALL U.S. OILS - CRUDE OIL PRODUCTION - REFINERY RUNS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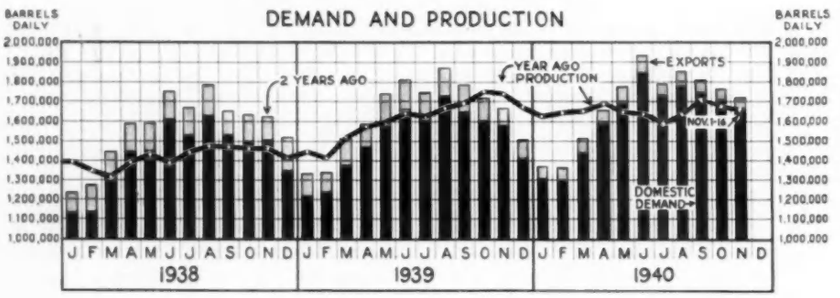
2 YEARS AGO
YEAR AGO
EXPORTS
PROD. NOV. 1-16
RUNS NOV. 1-16
DOMESTIC DEMAND
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1938
1939
1940

Source: Bureau of Mines, except data for October and November, 1940, which are estimates.

GASOLINE SITUATION

DEMAND AND PRODUCTION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DOMESTIC DEMAND
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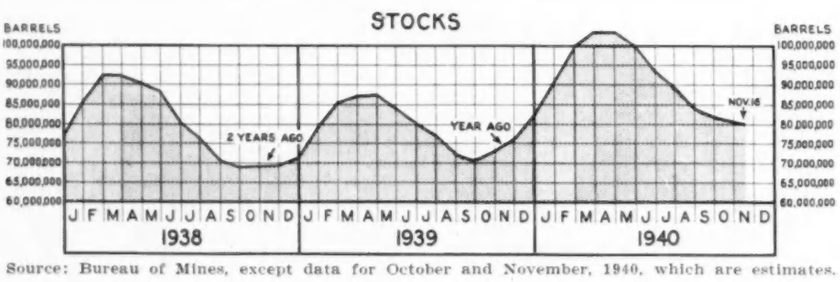
1938
1939
1940

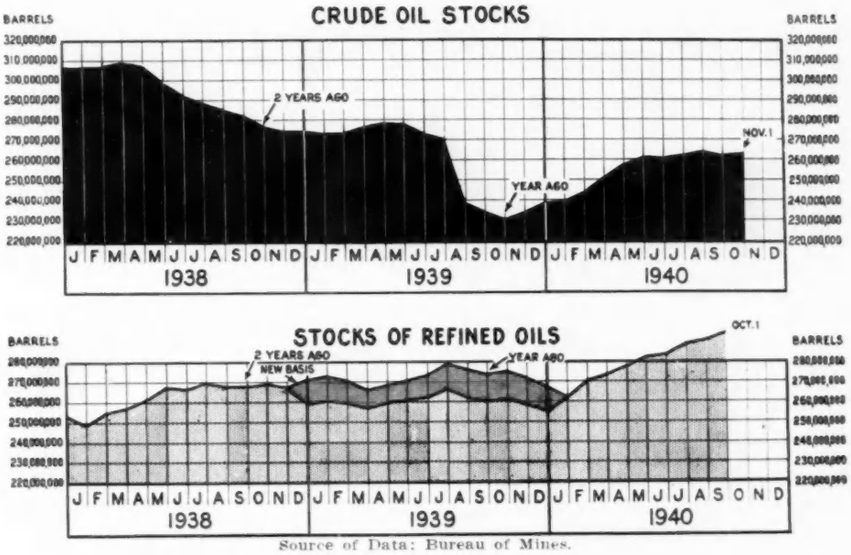
STOCKS



Source: Bureau of Mines, except data for October and November, 1940, which are estimates.

resentative cities, as reported by the American Petroleum Institute.

Period	Cents Per Gal.
By Years:	
1937	14.59
1938	14.07
1939	13.31
1940 (10 Months)	12.87
By Months:	
1939—	
January	13.32
February	13.11
March	13.04
April	13.07
May	13.16
June	13.22
July	13.40
August	13.28
September	13.38
October	13.52
November	13.65
December	13.51
1940—	
January	13.53
February	13.43
March	13.34
April	13.17
May	12.91
June	12.66
July	12.53
August	12.58
September	12.33
October	12.20



STOCKS OF REFINED OILS
BARRELS
2 YEARS AGO
NEW BASIS
YEAR AGO
OCT. 1
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1938
1939
1940

Source of Data: Bureau of Mines.

Before commencement of the present fall-winter period, economists calculated that attainment of the ideal inventory of 85,000,000 barrels of gasoline as of March 31, 1941, would require the holding of refinery runs to an average of 3,400,000 barrels daily for the 6 months, under the assumption that yields of gasoline from crude would average only 43 percent.

However, in October and the first 16 days of November, runs to stills, as reported to the American Petroleum Institute, actually averaged 3,540,000 barrels daily, although they were below that average in several recent weeks.

Production of crude oil has been closer to economic levels than have the refinery operations. For maintaining runs to stills at 3,400,000 barrels daily, the necessary average for achieving an 85,000,000-barrel gasoline inventory at the end of the winter, crude production of 3,525,000 barrels would have been needed, on the average, making allowance for use in the oil fields and in other ways.

Actually, crude output in October and the first 16 days of November averaged 3,586,000 barrels, according to the weekly reports of the American Petroleum Institute.

Total Oil Demand Up 2 Percent for First 9 Months of 1940

Figures indicate barrels, and are from Bureau of Mines.

	SEPTEMBER			FIRST NINE MONTHS		
	1939	1940	Percent Change	1939	1940	Percent Change
SUMMARY						
Total Demand	124,723,000	119,639,000	— 4.1	1,044,589,000	1,071,329,000	+ 2.6
Daily Average	4,157,000	3,988,000	— 4.1	3,826,000	3,910,000	+ 2.2
Exports:						
Crude Petroleum	6,925,000	4,260,000	— 38.5	55,147,000	40,452,000	— 26.6
Refined Products	10,797,000	‡5,288,000	— 51.0	90,731,000	61,983,000	— 31.7
Total Exports	17,722,000	9,544,000	— 46.1	145,878,000	102,435,000	— 29.9
Domestic Demand:						
Total domestic demand	107,001,000	110,091,000	+ 2.9	898,711,000	968,894,000	+ 7.8
Daily average	3,567,000	3,670,000	+ 2.9	3,292,000	3,536,000	+ 7.4
TOTAL DEMAND FOR PRODUCTS						
Motor Fuel:						
Domestic	49,347,000	52,297,000	+ 5.97	411,901,000	440,130,000	+ 6.8
*Exports	4,232,000	1,907,000	— 54.9	35,420,000	18,770,000	— 47.0
Total	53,579,000	54,204,000	+ 1.2	447,321,000	458,900,000	+ 2.6
Aviation Gasoline:						
(Included above):						
Domestic	†	463,000	.....	†	3,764,000	.....
Exports	207,000	301,000	+ 45.4	3,300,000	2,972,000	— 9.9
Total	.....	764,000	.....	.....	6,736,000	.....
Kerosene:						
Domestic	4,638,000	5,173,000	+ 11.5	42,846,000	48,592,000	+ 13.4
Exports	577,000	178,000	— 69.2	5,917,000	2,926,000	— 50.5
Total	5,215,000	5,351,000	+ 2.6	48,763,000	51,518,000	+ 5.6
Gas Oils and Distillate Fuels:						
Domestic	10,010,000	10,715,000	+ 7.0	96,324,000	113,747,000	+ 18.1
Exports	3,015,000	947,000	— 68.6	25,151,000	15,579,000	— 38.1
Total	13,025,000	11,662,000	— 10.5	121,475,000	129,326,000	+ 6.5
Residual Fuel Oils:						
Domestic	26,966,000	25,567,000	— 5.2	231,725,000	242,321,000	+ 4.6
Exports	1,624,000	1,552,000	— 4.4	13,758,000	12,464,000	— 9.4
Total	28,590,000	27,119,000	— 5.2	245,483,000	254,785,000	+ 3.8
Lubricants:						
Domestic	2,207,000	2,150,000	— 2.6	17,205,000	17,851,000	+ 3.8
Exports	1,012,000	393,000	— 61.2	8,496,000	8,620,000	+ 1.5
Total	3,219,000	2,543,000	— 21.0	25,701,000	26,471,000	+ 3.0
Wax (pounds):						
Domestic	32,651,000	37,988,000	+ 16.4	201,073,000	257,103,000	+ 27.9
Exports	30,193,000	11,428,000	— 6.2	186,479,000	159,194,000	— 14.6
Total	62,844,000	49,416,000	— 21.3	387,552,000	416,297,000	+ 7.4
Coke (short tons):						
Domestic	86,600	122,300	+ 4.1	1,014,300	1,029,400	+ 1.5
Exports	38,200	26,900	— 29.6	212,000	200,200	— 5.6
Total	124,800	149,200	+ 19.5	1,226,300	1,229,600	+ 0.3
Asphalt (short tons):						
Domestic	605,200	695,800	+ 14.9	3,719,300	3,911,700	+ 5.2
Exports	4,400	16,900	+329.5	34,500	231,600	+571.3
Total	609,600	712,700	+ 16.9	3,753,800	4,143,300	+ 10.4
Road Oil:						
Domestic	1,072,000	1,128,000	+ 5.2	6,986,000	6,697,000	— 4.1
Miscellaneous:						
Domestic	171,000	222,000	+ 29.8	1,677,000	1,579,000	— 5.9
Exports	14,000	42,000	+200.0	74,000	781,000	+955.4
Total	185,000	264,000	+ 42.7	1,751,000	2,360,000	+ 34.8

* Includes benzol, 1,000 barrels in September, 1940. † Not available. ‡ Exclusive of 10,000 barrels exported from non-contiguous territories but inclusive of 74,000 barrels shipped from U. S. to territories.

Demand for Petroleum

Total demand for petroleum in recent months has been somewhat smaller than a year ago, as small increases in domestic consumption have not compensated for the loss of export business.

In September, total demand was 4.1 percent smaller than in September, 1939, as domestic requirements showed a 2.9 percent increase, while exports of crude were down 38 percent and those of refined products in the aggregate were off 51 percent.

For the first 9 months of 1940,

total demand was 2.2 percent larger than in the corresponding months of 1939, on a daily average basis. Domestic demand was up 7.4 percent. But exports were down 30 percent, as shipments of crude were off 27 percent, while those of refined products were down 32 percent.

Gasoline Situation

Continuation of the established trend of gasoline demand is anticipated. The Bureau of Mines in its monthly forecast for December estimated that total demand for motor fuel would be 2.7 percent larger than in December of last year. Domestic requirements were expected to be up 5.9 percent, to 46,400,000 barrels for December, 1940, from 43,807,000 barrels for December, 1939. Exports were expected to total about 1,800,000 barrels, or 42.6 percent less than the 3,136,000 barrels shipped out in December of last year.

The latest official information on gasoline demand covers September, and in that month, total market requirements were 1.2 percent larger than a year previously. Exports were off 55 percent, but domestic consumption showed a 6 percent gain.

From January through September, 1940, total demand for gasoline was 2.6 percent larger than in the corresponding 9 months of 1939. Domestic requirements were up 6.8 percent, but exports were down 47 percent, from 35,420,000 to 18,770,000 barrels.

Kerosene continued in September to move to foreign countries in smaller quantities than a year previously, shipments having been about 70 percent lower than in September of last year. But domestic demand was up 11.5 percent, and in consequence, there was a 2.6 percent gain in total requirements.

Total demand for kerosene was 5.6 percent larger in the first 9 months of 1940 than in the like months of 1939, despite a 50 percent drop in exports, from 5,917,000 to 2,926,000 barrels. For domestic consumption was up 13.4

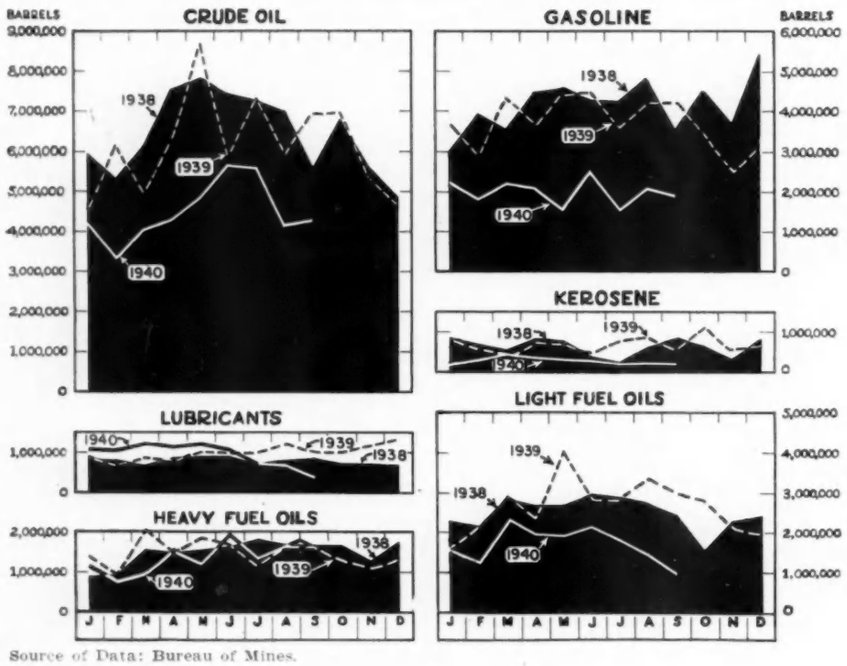
[*Continued on page 36*]

Oil Exports in All of 1940 About One Third Smaller Than in 1939, and Shipments in September Only Half as Large as in That Month Last Year

ITEM	FIRST NINE MONTHS 1939	FIRST NINE MONTHS 1940	FIRST NINE MONTHS Percent Change	MONTH OF SEPTEMBER 1939	MONTH OF SEPTEMBER 1940	MONTH OF SEPTEMBER Percent Change
Crude Oil	55,147,000	40,452,000	— 27.0	6,925,000	4,260,000	— 38.5
Products:						
Motor Fuel	35,420,000	18,770,000	— 47.0	4,232,000	‡1,907,000	— 54.9
Aviation Gasoline (included above)	3,300,000	2,972,000	— 10.0	207,000	301,000	+ 45.4
Kerosene	5,917,000	2,926,000	— 51.0	577,000	178,000	— 69.2
Gas Oil and Distillate	25,151,000	15,579,000	— 38.1	3,015,000	947,000	— 68.2
Residual Fuel Oil	13,758,000	12,464,000	— 9.4	1,624,000	1,552,000	— 4.4
Lubricants	8,496,000	8,620,000	+ 15.0	1,012,000	393,000	— 61.2
Wax (pounds)	186,479,000	159,194,000	— 15.0	30,193,000	11,428,000	— 62.2
Coke (short tons)	212,000	200,000	— 6.0	38,200	26,900	— 29.6
Asphalt (short tons)	34,500	231,600	+571.3	4,400	16,900	+284.1
Miscellaneous Oils	74,000	781,000	+955.4	14,000	42,000	+200.0
*Total Refined Products	90,731,000	61,983,000	— 32.0	10,797,000	†5,288,000	— 51.0
Total Crude and Products	145,878,000	102,435,000	— 30.0	17,722,000	†9,548,000	— 46.1

* Not sum of the above figures, some of which do not indicate barrels. † Exclusive of 10,000 barrels exported from non-contiguous territories but inclusive of 74,000 barrels shipped from U. S. territories.
‡ Includes benzol, 1,000 barrels in September, 1940.

U. S. Exports of Crude Petroleum and Refined Products



Source of Data: Bureau of Mines.

Changes From Year Ago in Stocks of Crude and Refined Oils in the United States

(Figures indicate barrels)

LATEST WEEKLY DATA

(Sources: Crude stocks, Bureau of Mines; all other figures American Petroleum Institute)

STOCKS OF:	November 16, 1939	November 16, 1940	Percent Change
Gasoline	75,170,000	80,063,000	+ 6.5
Gas Oil & Distillate	38,917,000	48,108,000	+26.6
Residual Fuel Oil	112,054,000	107,151,000	— 4.4
Crude Oil	*230,037,000	†261,631,000	+13.7

LATEST MONTHLY DATA

(Source: Bureau of Mines.)

ITEM	Stocks at End of September 1939	1940	Percent Change
SUMMARY—			
Crude Petroleum:			
Refinable in U. S.	234,555,000	263,124,000	+12.2
Heavy in California	14,085,000	12,562,000	—16.2
Natural Gasoline	5,891,000	7,038,000	+19.5
Refined Products	274,028,000	294,095,000	+ 7.3
Total, all oils	528,559,000	576,819,000	+ 9.1
Day's supply:			
September basis	127	145	+14.2
9 Months Basis	138	148	+17.2
PRODUCTS—			
Gasoline:			
Finished	65,498,000	75,915,000	+15.9
Unfinished	5,494,000	5,992,000	+ 9.1
Total	70,992,000	81,907,000	+15.4
Aviation Gasoline (included above)	‡	5,428,000	
Kerosene	9,952,000	10,254,000	+ 3.0
Gas Oil & Distillate Fuels	38,138,000	48,828,000	+28.0
Residual Fuel Oils	100,063,000	94,947,000	— 5.1
Lubricants	6,704,000	8,596,000	+28.2
Wax (pounds)	89,584	110,028	+22.8
Coke (short tons)	668,000	617,000	— 7.6
Asphalt (short tons)	475,000	490,000	+ 3.2
Road Oil	791,000	844,000	+ 6.7
Miscellaneous	315,000	358,000	+13.7
Other Unfinished Oils	40,801,000	42,188,000	+ 3.4

* November 11, 1939
† November 9, 1940
‡ Not available

Smaller Flow Strings Being Used in Many Regions

USE of small oil strings has become an established practice in several producing districts. This trend toward smaller flow strings has been most pronounced where low well allowables prevail, small initial production is expected, deeper drilling is unlikely, or the chance for outright failure is prominent. Contributing factors are chiefly economic, since the larger oil strings are admittedly more satisfactory from a mechanical standpoint.

Operators are not in full agreement as to the smallest size oil string that should be run under a given condition. Three or four sizes are run in a single district, and good reasons for the use of any size may be advanced. On the whole, however, companies generally favor smaller oil strings than were run several years ago. The extreme range might be placed from 7⅝-inch to 4½-inch, with the 5½-inch being the most popular size in such districts as the Gulf Coast, Kansas and West Texas. The recent trend toward smaller oil strings in two deep California fields also is significant.

Smaller tubing strings are being used as a direct result of the new oil-string programs. The use of 2½- and 3-inch tubing for flowing wells has almost disappeared in flush producing areas affected by small well allowables, but 2½-inch tubing still is widely used in pumping wells. Tubing as small as 1¼-inch has been used in flowing wells along the Gulf Coast, while several companies have standardized on 2-inch tubing in 5½-inch oil strings.

One group of petroleum engineers contends that the flowing life of a well is prolonged appreciably by use of small tubing. This is accomplished supposedly by a higher flowing velocity and conservation of flowing energy through a lower gas/oil ratio. Use of 1-inch tubing is favored by one engineer where a strong flowing reserve is present and well allowables are nominal. The very small tubing strings are not as satisfactory from a mechanical standpoint as the larger-diameter tubing, and where paraffin is a problem the larger strings are more desirable. The small tubing also prevents running bottom-hole pressure bombs of the type ordinarily used. Tubing smaller than 2-inch can not be used satisfactorily in ordinary pumping wells. The largest tubing ordinarily used in 5½-inch oil strings is the standard or upset 2-inch type.

Gulf Coast Uses

The Texas Company virtually has standardized on 5½-inch oil strings in Gulf Coast fields where there is little hope for deeper production. Where deeper productive zones exist or are suspected, 7-inch oil strings are run. Two-inch tubing has been considered standard in the 5½-inch oil strings, but much smaller tubing strings are being considered in strong flowing wells. The company believes that tubing as smal as 1-inch will prove an excellent size in flowing wells with small allowables. It also is believed that proper use of small tubing will prolong the flowing life of the average well. The flowing velocity and gas/oil ratio usually are affected by changes in tubing sizes. Economics thus becomes a stronger force than mechanics, since the very small tubing remains at a disadvantage in case of trouble.

Humble Oil & Refining Company has been using 5½-inch oil strings extensively in many of its Gulf Coast and miscellaneous Texas operations, except in wildcat wells and in areas where deeper drilling may be necessary. Both 14- and 17-pound casing is used in the longer strings. The standard tubing string run in this 5½-inch oil string is 2-inch, but the company has experimented with smaller tubing in various flowing wells. Tubing as small as 1¼-inch has been used in an effort to study or improve flowing conditions. The smaller tubing apparently gives a higher flowing velocity, but it offers several disadvantages. Bottom-hole pressure work is difficult to complete in tubing smaller than 2-inch. The company also avoids use of very small tubing in areas troubled by paraffin.

Tubing-in-Tubing

An interesting sidelight is Humble Oil & Refining Company's use of tubing-in-tubing. Several strings of 1¼-inch tubing have been run inside the regular 2½-inch tubing strings, while 1-inch tubing has been run inside the original 2-inch tubing. The two strings are packed off at top, and flow is through the smaller string in each instance. The smaller tubing gives an increased flowing velocity, and in some wells has given a more satisfactory gas/oil ratio. It is believed that the flow in wells of a certain type may be prolonged by use of smaller tubing strings, but the work still might be classed as an experiment.

Use of small oil strings has influenced other phases of drilling operations. Humble Oil & Refining Company ordinarily drills an 8⅝-inch hole below the surface string, which ordinarily is 10- or 10¾-inch casing. The hole drilled for 5½-inch is much smaller than that drilled several years ago when larger oil strings were in vogue.

Gulf Oil Corporation virtually has standardized on 5½-inch oil strings in inside locations along the Gulf Coast and in other Texas

districts, although 7-inch casing often is run in deep Louisiana wells. Only one weight of 5½-inch casing ordinarily is used, the 17-pound grade being standard in the average well. Two-inch tubing is standard equipment in the 5½-inch oil strings. The company ordinarily runs 10- or 10¾-inch surface casing and drills an 8⅝- or 9⅝-inch hole to bottom for a small oil string.

The Pure Oil Company extensively uses 5½-inch oil strings in Gulf Coast fields, but prefers 2½-inch tubing. This operator feels the larger tubing offers several advantages justifying its use in the average well. Where an insert type pump may be installed after natural flow ceases, the 2½-inch tubing permits installation of pumps up to the 2-inch size. The company also doubts the value of small tubing where paraffin is a problem.

Continental Oil Company has effected a compromise casing program by using 6-inch oil strings in its average deep well along the Gulf Coast. This size has proved more satisfactory from a mechanical standpoint than the smaller size commonly used by other operators. Two weights of 6-inch are ordinarily used in the long oil strings, a typical string for a 9000-foot well consisting of 7500 feet of 17-pounds on top, and 1500 feet of 18½-pound on bottom, all of the "J-55" (Grade D) type. A 10¾-inch surface string usually is run, and an 8⅝-inch hole drilled to bottom. Two-inch tubing is used.

In the South Texas fields, Continental Oil Company runs 6-inch oil strings, but 15-pound "J-55" grade is used. In most of the company's West Texas and New Mexico operations, 5½-inch, 17-pound, "J-55" oil strings are run. Two-inch tubing is chiefly used.

A major Gulf Coast operator has attempted to develop a 5½-inch oil-string program for wells of different depths. In a typical 8000-foot well, the 5½-inch casing consists of 5900 feet of 15-pound, "J-55" on top, and 2100 feet of 17-pound, "J-55" on bottom. The 9000-foot string of 5½-inch includes 6500 feet of 17-pound, "J-55," regular type on top; 1200 feet of "J-55," 17-pound, internal upset in the middle, and 1300 feet of 17-pound, "N-80" on bottom. In the shallower wells producing from 4000 to 5000 feet, a full string of 5½-inch, 14-pound, "H-40" casing is run. Two-inch tubing is standard in the company's 5½-inch casing programs.

An unusual oil string was run recently in the South Cotton Lake, Texas, area, when a production test was required at minimum expense in an outpost well. The small string consisted of 6500 feet of 4-inch, 11.6-pounds, "H-40" casing. A full string of 1¼-inch tubing was run for the test. The well failed to produce oil, justifying the attempt to make a production test in a questionable well at a small outlay.

Oil string sizes vary from 4½-inch to 7-inch in the different producing districts of Texas, New Mexico and Kansas, but the 5½-inch is nearest to standard in the average area.

West Texas and New Mexico

The trend toward smaller flow strings has been noticeable particularly in West Texas and New Mexico, where 5½-inch casing has become standard for inside locations in fields of nominal depths.

Gulf Oil Corporation, most active operator in the Goldsmith field, Ector County, has shifted to 5½-inch flow strings. The company still uses 7-inch oil strings in the Gulf-McElroy area, where many wells will be deepened to lower breaks in the thick lime pay when production eases off. The large oil strings are justified, since ultimate recovery appears high, large flowing wells are not uncommon, and the initial well rating may be improved by use of larger oil strings. The company's extensive drilling program planned for its vast proved acreage in North Ward County, Texas, involves the use of 7-inch oil strings because of the general use of a nitro shot to increase production.

The Wasson field in West Texas, a large producing area, has been assigned 5½-inch oil strings for the average well. Some independent operators are using 7-inch oil strings, where a large-diameter hole is required to facilitate removal of cavings after heavy nitro shots. Shell Oil Company has standardized on 5½-inch oil strings but hedges on the doubtful locations with 4½-inch oil strings. Humble Oil & Refining Company runs 5½-inch oil strings in this field, after cementing a short surface string of 8⅝-inch casing. Production is developed between 4900 and 5200 feet. Two-inch tubing is largely used.

In the Seminole field, Duggan-Slaughter district, and Ector County, 5½-inch oil strings are in vogue and chiefly used. Shell Oil Company has used a few 4½-inch oil strings, while other operators use 7-inch flow strings where heavy nitro shots are involved.

In the proved lime areas of Lea County, New Mexico, 5½-inch "H-40" grade oil strings are used where acid is employed to increase the output. In the sandy-lime belt on the east side of the county, 7-inch oil strings are widely used to facilitate removal of shot cavings. In the shallow producing districts of Eddy County, a light grade of 7-inch casing is used for oil strings.

In North Texas, development involves the use of small oil strings to a limited extent. K-M-A operators ordinarily find that 7-inch oil strings are most practical, since the increased labor cost in removing shot cavings from a small-bore hole largely offsets the greater cost of running 7-inch oil casing. Continental Oil Company has adopted a compromise plan at K-M-A by adopting 6-inch, 16-pound casing for flow strings.

In the Hull-Silk field, North Texas, 7-inch oil strings are widely used, but 5½-inch casing is used in many wells.

Low per-acre oil yields due from some of the deeper areas in North Texas has forced operators to economize on pipe. British-American Oil Producing Company has standardized on 4½-inch oil strings in the Seymour pool, Baylor County, and Shell Oil Company has adopted a similar program in the 3100- and 3500-foot zones in the Shell-Henderson pool.

Deep North Texas Programs

In some of the new deeper-zone plays in North Texas, 7-inch flow strings are mostly used. One operator tried to economize by setting 5½-inch casing in a large-diameter hole, but cementing difficulties developed and the well ultimately was listed as a failure. The 7-inch oil strings are popular in North Texas fields having multiple-sand conditions.

East Texas operators were among the first to switch to smaller oil strings. The most popular size now being run is the 4½-inch "H-40" grade, but some 5-inch is used in the stronger flowing wells. Two-inch tubing is standard in all parts of the field, but larger tubing has been used. Several hundred strings of 6-inch I.D. line pipe, salvaged from surface lines, have been

run in the East Texas field, but the practice has been discontinued.

Illinois Programs

Slim-hole rigs which cut holes for casing as small as 4½ O.D. are being used in Illinois. There have been a number of such wells successfully completed in the area around Centralia to the Benoist and Aux Vases sands, which average between 1765 and 1900 feet in depth.

The rigs used on these shallow slim-holes in Illinois are modifications of exploratory tools, designed primarily for use to drill seismograph shot holes. They are completely mobile, and carry all necessary equipment, such as mud pumps, rotary table and hoisting equipment on the truck.

When this type of drilling is employed, the hole is started with an 8¼-inch bit and continued until the depth is reached for setting the surface pipe. From this point to bottom of the hole, a 6¼-inch hole is drilled to accommodate 4½-inch casing that weighs about 10 pounds per foot.

When rigging up to drill wells to be cased with 4½-inch pipe, the highly mobile string of tools is driven to the location where a platform of planking is laid on the ground to prevent the wheels of the truck from sinking during wet weather. A similar floor is laid directly upon the surface of the ground between the rotary table so that a dry working floor will be provided.

The legs of the derrick next to the truck are attached to the frame and provided with heavy hinges for laying down across the truck during moving operations. The outside legs are doubled and fitted with attachments for connecting screw jacks to level up before drilling is started.

In many cases the motor of the truck serves adequately for rig power. As the small diameter drill pipe has a tendency to wander and whip, due to its extreme flexibility, precautions are taken to keep the direction of the hole as near vertical as practicable with a single drill collar on the last stand of drill pipe. Subs for connecting the wall reamers and the drilling bit below are attached to the bottom of the drill collar. With caution on the part of the driller, holes are being kept straight in Illinois.

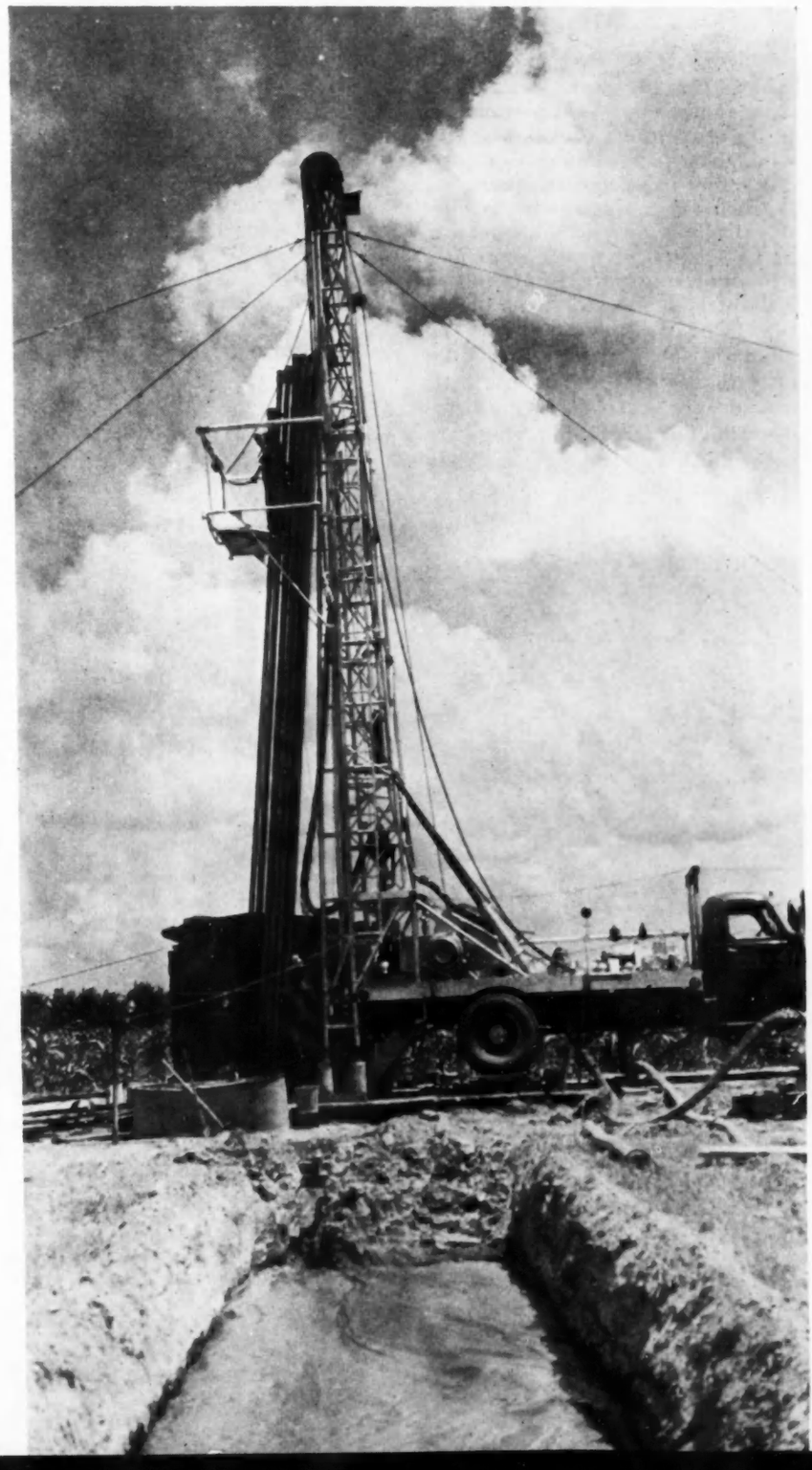
Wells completed with 5½, 5 and 4½-inch casing are being pumped efficiently with casing pumps and 2-inch tubing pumps. New developments in wall scrapers and other reconditioning devices have proved helpful in keeping the small diameter holes in good producing condition.

North Louisiana-Arkansas

Oil-string programs in North Louisiana and Arkansas vary with depths and producing conditions. In the Rodessa, Cotton Valley and Shuler fields, 7-inch "J-55" casing is standard in the 6000- to 8000-foot wells. In such fields as Lisbon, 5½-inch "H-40" casing is extensively used. Two-inch tubing is the standard size in the 5½-inch casing, and 2½-inch tubing is ordinarily used in the 7-inch oil strings. Rodessa almost exclusively uses the latter.

An interesting use of the larger oil strings has been in the sulphur-contaminated producing areas, where smaller oil strings have been required after deterioration of the

Slim-hole mobile type of rig employed in the Illinois Basin to drill Benoist and Aux Vases sand wells for casing flow strings as small as 4½ inches in diameter.



original 7-inch oil strings. If the larger oil strings had not been used originally, many wells would have been lost because of inability to run small repair strings inside the affected wells. Where corrosion is a factor, many operators are running 7-inch oil strings with the hope that oil production will outlast the original casing. Proration also has prolonged the natural producing life of wells in such sulphur-contaminated areas as the Permian Basin. A second casing string has been required in each of many producing wells that originally were equipped with 7-inch casing.

Oklahoma Trend Not Pronounced

The trend toward small oil strings has not been pronounced in Oklhoma, the most popular size being 7-inch. Shell Oil Company and a few independents are using 4½-inch oil strings where slim-hole drilling or necessity for reducing costs is involved. Some 5½-inch oil strings are being run in shallow wildcats. Oklahoma operators show a preference for the 7-inch oil strings where the possibility of deeper production exists, or where wells are shot with nitroglycerin. The larger oil strings are preferred in all producing districts where clean-out and fishing jobs are frequent, or where running liners is an important phase of completion operations. Liners are run with difficulty in the very small oil strings. In the Greater Seminole area, 7-inch oil strings are used, with a few strings of 4½- and 5½-inch in weak or edge wells. Standard oil string in the Oklahoma City field is 7-inch, with a few 9-inch strings. Most of the casing used in the shallow wells is the "H-40" grade; with the "J-55" grade preferred in the deeper wells. Two-inch tubing is used in the 4½- and 5½-inch oil strings, and 2½-inch tubing in the 7-inch casing.

Kansas operators are showing a preference for 5½-inch oil strings, especially in the western part of the state. In this district the Arbuckle lime is the principal goal, and acid may be used as effectively through a small oil string. Possibility of deeper production is slight. Shell Oil Company has successfully used 4½-inch oil strings in many wells, largely the result of its slim-hole drilling program in the area.

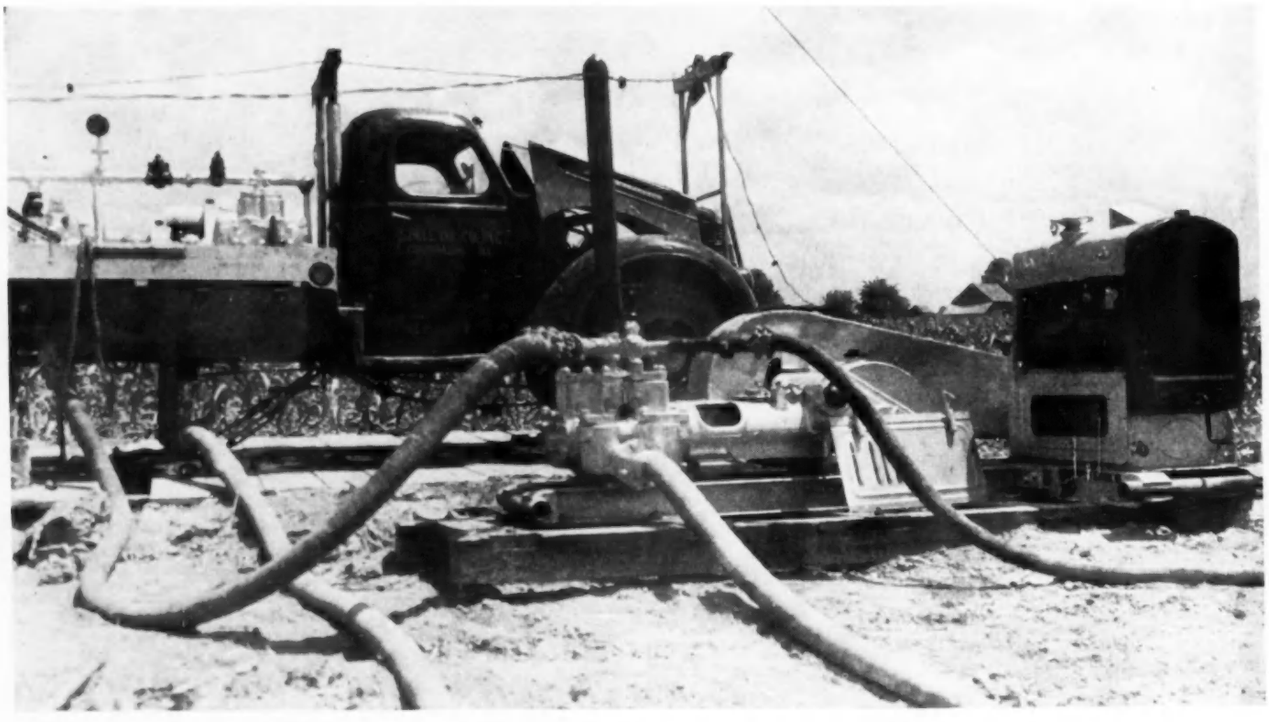
California Deep Strings

Small oil strings have been used successfully in deep California fields, marking the first definite departure from the "standard" 7-inch casing program. Shell Oil Company ran several strings of 4½-inch, 12.6-pound, "J-55" casing to 8000 feet in the Canal and Ten Section fields, following a slim-hole drilling program. The wells were finished with 3½-inch liners and 2-inch tubing. Union Oil Company recently ran a 5½-inch oil string to 11,200 feet in a Rio Bravo completion. The well was completed with a 4-inch flush liner. The usual oil string run at Rio Bravo is 7-inch, "J-55" casing. The standard oil string for deep producing areas in California still remains the 7-inch. Economics has been the chief deciding factor where smaller oil strings have been run.

The first Mississippi producers were completed with 7-inch oil strings, but 5½-inch casing has become a popular size in the Tinsley field.

Oil-string sizes range from 4½- to 7-inch in the Rocky Mountains, but the smaller and intermediate sizes are used much more than the largest size. During the early boom days at Salt Creek, 6⅝-inch oil strings were standard. Some of the deeper fields use 7-inch oil strings where deeper drilling is likely.

The eastern states use a variety of oil-string sizes, but 4½- and 5½-inch casing is extensively used in the shallow producing areas. Salvaged line-pipe often is used in wells requiring a nominal outlay.



Method of setting auxiliary mud pump for use with slim hole drilling tools in Illinois Basin. The regular mud pump is mounted on the truck.

Mexican Oil Industry in Precarious Condition

Experts file report asserting production will descend to zero within seven years if present operating practices continued

REPORT of the experts appointed in the economic suit filed by Petroleos Mexicanos (the governmen oil administration) before the Federal Labor Board, paints a very gloomy picture of the Mexican oil industry.

"If conditions continue as they are at present, production will have descended to zero within seven years," the report, made public November 12, declares.

It will be recalled that the past July, General Managers Vicente Cortes Herrera and Jesus Silva Herzog (since resigned) filed an economic suit on behalf of the government oil administration before the Federal Board of Conciliation and Arbitration. This action was taken to obtain authority to reduce wages and benefits paid the workers. In their petition, the co-managers of the oil administration described the economic condition of the industry as being "of such grave character that, unless immediate correction is made, it would bring the petroleum industry to a state of utter bankruptcy." They asked quick relief from existing contractural relations with the workers if the industry was to be saved. It was pointed out that workers' salaries and benefits at the time amounted to more than the maximum of 75,000,000 pesos annually demanded of the foreign companies, a demand the refusal of which by the companies was followed by expropriation. This 75,000,000-peso total was fixed by the labor board award of December 18, 1937, when the workers, who were getting approximately 49,000,000 pesos in 1936, were allowed an annual increase of more than 26,000,000 pesos.

Ever since the filing of the economic suit by the government oil administration, efforts to bring about a reorganization of the industry have been prosecuted unremittingly. President Lazaro Cardenas, who expropriated the foreign-held properties in 1938 and made the industry a public utility under the exclusive supervision of the government, has given his personal attention to the reorganization plan and has repeatedly advised that this must be accomplished prior to his retirement. He has yet a week of office.

The report of the investigation of the industry by the three experts—Enrique Sarro, Miguel Manterola and Jose Lopez Portilla Weber—indicates that even the reduction of personnel requested by Petroleos Mexicanos is not sufficient to solve the economic problem of the industry.

The report sets forth that production in the 1938-40 period was less than for the 1936-37 period; that the oil fields in the Panuco and Golden Lane zones are being exhausted and that it is possible at this time to carry out productive exploitation only in Poza Rica.

Exploration work since 1938 (the year of expropriation) has not been sufficient to insure the life of the industry, the report goes on to say. Proper technical practices have not been followed in the exploitation of the fields, gas worth many millions is being lost while the damage in various regions is great due to failure to plug wells.

Exploitation of gasoline and gas oil has declined considerably despite the fact that consumption of these products steadily increases, the experts report. Exports of gasoline have dropped by 27.07 percent, while wages, which in February, 1938, were 3,116,858 pesos, have increased to 4,478,491 pesos a month, an increase of 43.69 percent.

It is added that there are no reserve oil fields and if conditions continue as at present production will have reached zero within seven years.

Would Lower Salaries

The experts recommend doing away with all salary increases made to date and the discharge of all employes hired since the expropriation. They further recommend the advisability of a closer-knit set-up with offices, refineries, pipelines and so forth in order to facilitate urgently needed reduction of personnel. The opinion that approximately 25 percent of the existing personnel is useless is expressed, and it is proposed that confidential employes be limited to ten, of which four should be members of the board.

A study of the accounting reveals an absolute disorganization and lack of system, and in some cases a lack of ability of those in charge of such work, the report says. It is recommended that all auditors and accountants possess titiles or degrees, and that those at present employed who do not have titles be permitted to graduate as certified accountants before being replaced.

It is recommended that vacancies not be filled, that the working week consist of 44 hours, that vacations be twenty-one days for those with one to twelve years of service, and thirty days for those with more than twelve years of service, that the savings fund be deposited in La Nacional Financiera and that on the 15th of September each year the workers be given the accrued interest but that the deposit itself be repaid only when the worker

leaves the service, or to his heirs in case of death.

The payment of house rentals is recommended for those who work in zones distant from centers of population but in the cities only to those who earn less than 20 pesos a day.

Workers Answer

Hearing on this report started November 18. In the meantime, the Syndicate of Petroleum Workers has made public a memorandum submitted to President Cardenas regarding reorganization proposals. In this the workers make five suggestions, as follows:

1. Taxes should be in a fair proportion to allow development of the industry.

2. The industry should be operated on commercial, not governmental, basis.

3. More modern systems should be gradually established to achieve greater efficiency in operation.

4. A program of co-ordination should be formulated, seeking the best manner of carrying out the various works and installations required by the industry in accordance with its economic situation and within technical norms.

5. The ruinous contracts at present in force should be cancelled, and the conditions under which sales abroad are made should be studied.

The Syndicate also suggests the standardization of sales prices throughout the country. It further recommends modification of the system of purchasing of materials to do away with the receiving of commissions on purchases made by Petroleos Mexicanos by persons not connected with the organization.

Government Reply

On the heels of the report of the economic experts, a report that would seem to justify the oil administration's claims that drastic steps must be taken if the oil industry survives, Petroleos Mexicanos itself submitted an official report taking issue with some of the findings of the experts. For one thing, it admits that crude production has decreased but takes issue with the assertion that the Panuco fields are in full decline.

Production figures for the past four years are given as follows: In 1937, 41,119,529 barrels; in 1938, 35,258,506 barrels; in 1939, 40,947,371 barrels; in 1940, 40,000,000 barrels (estimated).

"This does not mean, however," the statement of Petroleos Mexicanos goes on to say, "that productive capacity has decreased, because it has increased by over 70 percent. The explanation for the decrease (in production) is that foreign markets have not been normal, mainly because of the war, and it is for this reason that it has not been possible to produce more oil. However, during brief periods of large demand, production has exceeded that which was obtained prior to the expropriation. In October, 1939, daily average production amounted to 139,173 barrels, while average daily production for 1937 was only 112,659 barrels. The potential production of all our wells is estimated at 240,000 barrels daily.

"It is not true that the Panuco fields are in full decline. The average daily production obtained by the companies in that area during 1937 was 18,311 barrels, and during August, 1939, when new wells were drilled and demand increased, the daily average obtained by Petroleos Mexicanos was 19,468 barrels. At present potential daily production is 25,000 barrels.

"No new wells have been drilled in the Golden Lane, but wells which had been abandoned have been put in exploitation, and at present can produce 25,000 barrels daily. The average daily production obtained by the companies in this area during 1937 was 15,826 barrels. In 1939 the daily average was 19,738 barrels and in July, 1940, 18,732 barrels."

In making such a detailed defense of the technical operation of the oil industry in the wake of critical report of the economic experts, Petroleos Mexicanos assumes the position to some extent of refuting the findings of a body on whose report it is dependent for authority to curtail expenses of the industry. No comment was made in the oil administration's statement on the experts' report that personnel must be reduced and strict economies effected. But the administration was quick to answer the implication that technical operation of the industry had been lacking in efficiency.

Plan Reorganization

Reorganization of the industry, which President Cardenas since the past February has been urging must be effected (and prior to his surrender of power if at all possible) moved a step nearer realization with the submission to the Chamber of Deputies by Cardenas the past week of a decree outlining various provisions for operation of the industry. This decree specifies that royalties on production shall be determined by taking into account the characteristics of the various oil regions but that in no case shall such royalties be less than 10 percent or more than 35 percent.

It is further specified that 20 percent of the annual profits obtained by Petroleos Mexicanos shall be set aside to form a reserve fund to insure the organization's financial stability. The balance of the profit would be distributed in proportion of 75 percent to the government and 25 percent to the workers.

The government would be empowered to use part or all of the revenue from interest, royalties or profits from the industry to increase its capital investment in Petroleos Mexicanos.

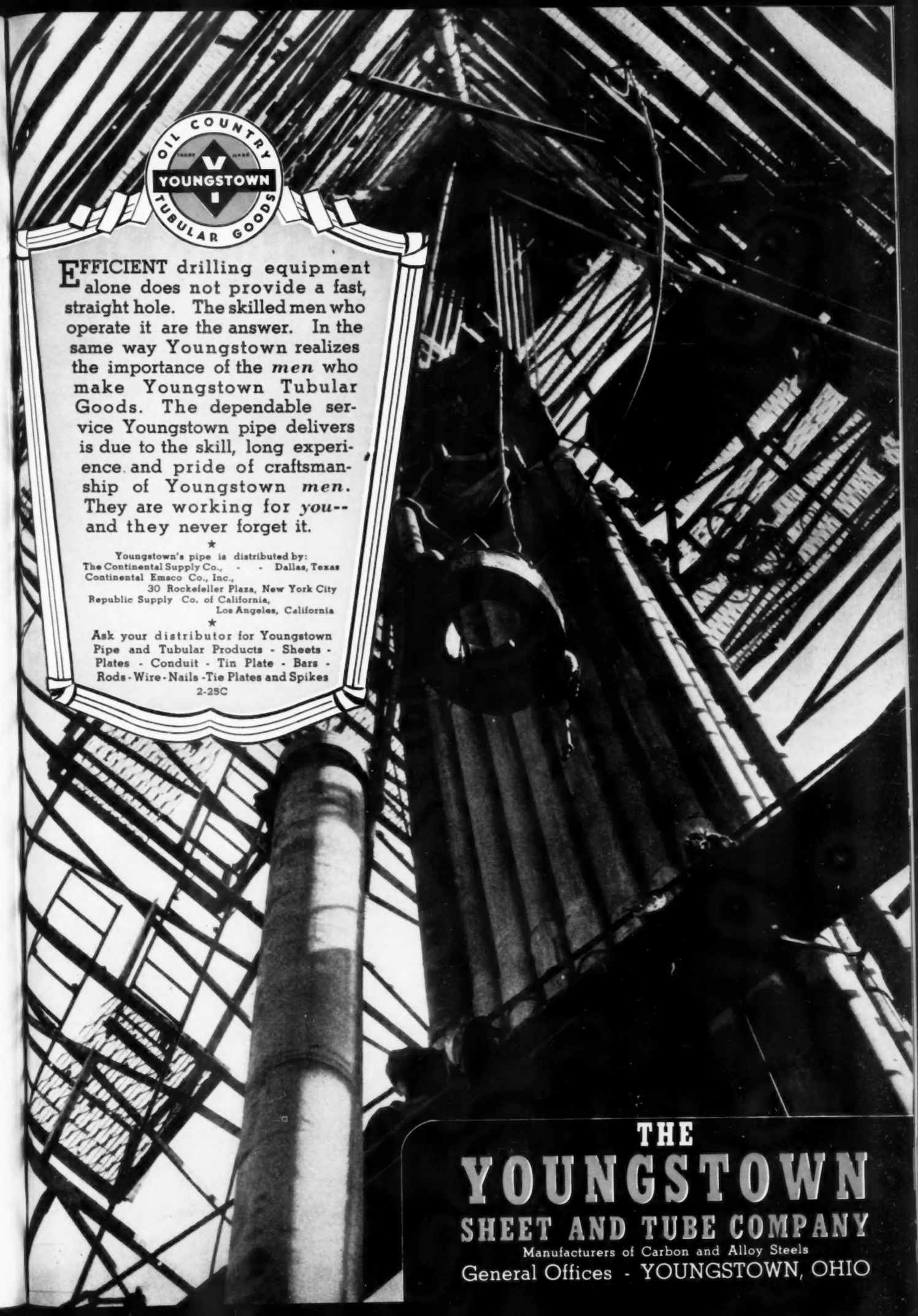
Petroleos Mexicanos would be given full powers to enter into contacts, issue credit notes and carry out all legal acts required by the management. It would also be empowered to issue payable obligations, subject to the law on credit titles and operations. It would further be empowered to dispose of the properties which form its patrimony, whether by transfer of property title because of legal liability for an obligation, or by affecting these properties by an actual lien. When the properties thus affected are real estate, approval of the Executive would be required through the Ministries of Finance and National Economy.

Oil deposits and the right to exploit them would in no case be included in such alienations.

Petroleos Mexicanos would pay the Ministry of Finance, charging such to operation expenditures, 3 percent interest per annum on the value of the properties contributed by the Federal government.

The proposed law includes two transitory articles, one of which reads: "The expediture of 60,000,000 pesos carried out by the Federal Executive up to October 31 last as a contribution in Petroleos Mexicanos to carry out investments in its fixed assets, is hereby approved."

This 60,000,000-peso contribution is explained as having been necessary by reason of the poor condition of the equipment taken over from the expropriated companies.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Oil Field Workers

and

The Wage-Hour Law

THE accompanying discussion of the U. S. Fair Labor Standards Act, commonly referred to as the Wage-Hour Law, with regard to the oil industry constitutes a speech made by G. C. Street, Jr., Dallas, regional director of the wage and hour division for Texas, Oklahoma, Arkansas and New Mexico. The address was made November 15 to a special meeting of oil men at Wichita Falls.

THE Fair Labor Standards Act requires a minimum wage of 30 cents an hour and a maximum workweek of 40 hours. This is applicable only to employees of employers engaged in interstate commerce or in the production of goods for interstate commerce. That, of course, covers the oil industry. An employee can work as many hours as he and his employer agree upon, but he must be paid one and one-half his regular rate of pay—not one and one-half times 30 cents—for hours worked in excess of 40. Thus, if a man's regular rate of pay is $2.00 per hour, he would have to be paid $3.00 after he passed the 40-hour limit.

In the oil industry there are several different groups to be considered:

(1) There are those employees engaged in the drilling of oil wells, or in occupations or processes necessary to the drilling. The Administrator has ruled throughout the effective period of the act that such employees are engaged in mining; and are, therefore, engaged in either the production of goods for interstate commerce or in occupations and processes necessary to such production; and that such drilling employees, therefore, are entitled to be paid in accordance with the provisions of the act.

This applies to all the various classifications of employees engaged in drilling operations. The driller, the tool dresser, the roughneck, are all subject to the act.

(2) The next category in which the employees with whom we are concerned fall is that of the production employees and those who are concerned with the treatment of wells in such a way as to increase the amount of production. This will include the pumper and roustabout on a stripper lease, and the gauger on a lease in flush production. It will include the employee who is engaged in cleaning out a well, or acidizing a well or in shooting a well.

The pumper and roustabout are engaged in the actual production of goods for interstate commerce if the oil produced from their leases moves outside the state of production. The cleaning crew, the acidizing crew, or the shooting crew, are engaged in a "process or occupation necessary to the production" of goods for interstate commerce. Without their efforts and without their work the production would be materially less. In fact, in many cases it would be reduced to such a point that the production from the particular well worked on would not be economical.

It can easily be seen, therefore, that such employees are fully entitled to the benefits of the act.

(3) The third group with which we are concerned includes employees of pipe lines. They are engaged in the operation of facilities used for the transportation of goods in interstate commerce, or they are engaged in the maintenance, reconstruction, and repair of such facilities. The right of Congress to legislate concerning such employees has been upheld in numerous opinions of the courts of this country.

It must be pointed out, however, that since pipe lines which carry goods in interstate commerce are subject to the provisions of Part I of the Interstate Commerce Commission Act, and are, therefore, subject to the jurisdiction of the Interstate Commerce Commission, the employees of such a pipe line are not entitled to the payment of overtime as provided by Section 7 of the Fair Labor Standards Act. This exemption is granted by Section 13(b)(2) of the Fair Labor Standards Act. They are, nevertheless, entitled to the payment of the minimum wage provided by Section 6 of the act.

Questions which arise in connection with these matters include whether employees engaged in the maintenance and repair of refineries are covered by the act. In the opinion of the Administrator, they are. A recent ruling on that subject says that workers employed to erect rigs for drilling oil and gas wells are covered by the law.

Employees engaged in building a new refinery or new facilities for refining oil are not covered and neither are the employees engaged in construction of a new pipe line—although those who are engaged in the extension, reconstruction, repairing or maintenance of an existing pipe line are covered.

One of the problems confronting the industry and the Division at the present time has to do with pumpers employed on a lease who have to be on duty 24 hours a day.

The division holds that no pumper, even though required to stay on a lease 24 hours a day, can actually work that number of hours a day—day in and day out. Where such an arrangement is made between an oil company and a pumper, it behooves each of them to definitely determine, or evaluate, the actual number of hours the employee will be required to work. The facts can only be as they actually are, and it is better to determine such facts and agree to them in writing prior to employment so as to obviate any unpleasant situations arising therefrom.

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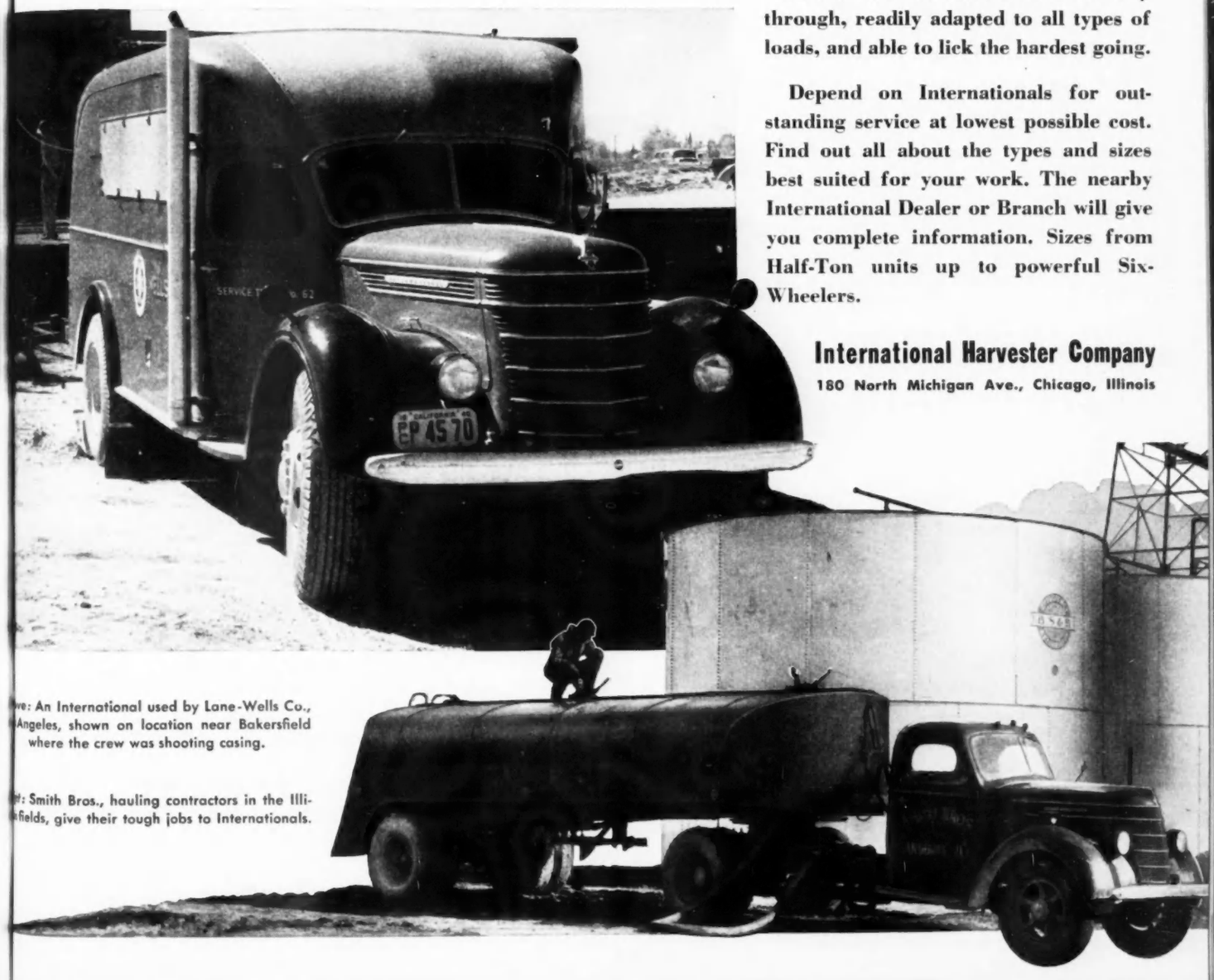

…ve: An International used by Lane-Wells Co., …Angeles, shown on location near Bakersfield where the crew was shooting casing.

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Gas Lift Results in Oklahoma City Field

Part 2

By S. F. SHAW, Consulting Engineer

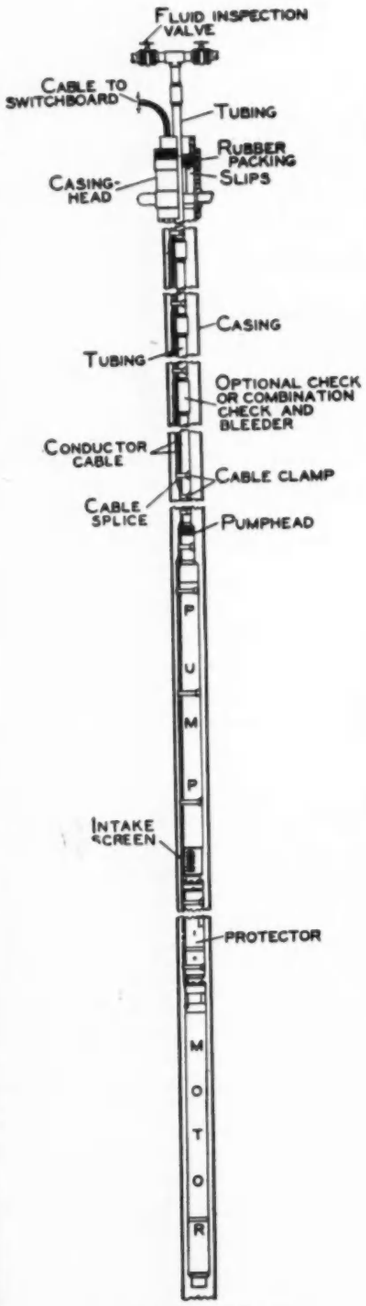

FIGURE 7
Submergible electrical centrifugal pump installation.

WHEN reservoir pressures of the permeable Wilcox sand formation at Oklahoma City declined sufficiently that straight gas lift, described in preceding installment a week ago, no longer was able to handle all the oil that would enter the well, combination gas lift and in some instances intermittent flow were employed to obtain a larger daily production.

It is the purpose of the present chapter to describe the various combination and intermittent gas-lift applications at Oklahoma City.

Combination Gas-Lift With Centrifugal Pump

When the flowing pressures in the Oklahoma City field declined to between 50 and 100 pounds per square inch, the capacities of 9⅝-inch casing were reduced respectively to about 500 and 1000 barrels per day, and yet it was demonstrated that more than 5000 barrels per day could enter the well.[12, 13] In many such wells the quantity of formation gas had declined to the point where it did not interfere seriously with the operation of the centrifugal pump. When this period was reached, the centrifugal pump was run on the lower end of a string of 2½-inch or 3-inch tubing and a packer was set at 500 to 1500 feet above the pump, with perforations in the tubing above the packer. The centrifugal pump lifted the oil under this reduced head through the tubing to the perforations where it passed into the casing together with compressed gas that was admitted to the tubing at the surface. From the pump to the perforations, the action was that of a mechanical pumping operation, while the action in the casing above the packer to the surface was that of straight gas-lift. See Figure 7.

Production of wells on straight gas-lift at 500 to 1000 barrels per day were increased to as much as 5000 barrels per day with the combination gas-lift-centrifugal pump method.

The performance of the centrifugal pump combination method at Oklahoma City was more satisfactory in wells completed with 9⅝-inch casing. It was also employed in wells with 7-inch casing, but in casings of 6⅝ inches the hazard of sticking became greater, owing to the space required for the passage of the upset tubing couplings together with the electric cable that was strapped to the tubing, also to the accumulations of paraffin and sand in the annular space.

The principal advantage of the

TABLE 10
Performance Data on Gas-Lift Centrifugal Pump Combination Method in the Oklahoma City Field

No.	Depth	Casing Diameter	Barrels per Day	Input Gas, M. Cu. Ft.			K. W. Hr. Electric Energy	
				Total 24 Hours	Cu. Ft. per Barrel	Cents per Barrel	Total 24 Hours	Per Barrel
1	6,401	9⅝"	4,900	5,665	1,150	1.05	2,793	0.57
2	6,401	9⅝"	4,000	5,052	1,260	1.15	2,120	0.57
3	6,530	9"	3,650	5,406	1,480	1.04	....	....
4	6,530	9"	2,900	4,222	1,450	1.37	1,830	0.70
5	6,533	9"	2,617	4,740	1,810	1.25	....	....
6	6,533	9"	1,980	3,985	2,010	1.90	....	....
7	6,539	9⅝"	1,430	3,335	2,300	2.10	1,335	0.92
8	6,539	9⅝"	1,150	3,220	2,890	2.06	1,490	1.34

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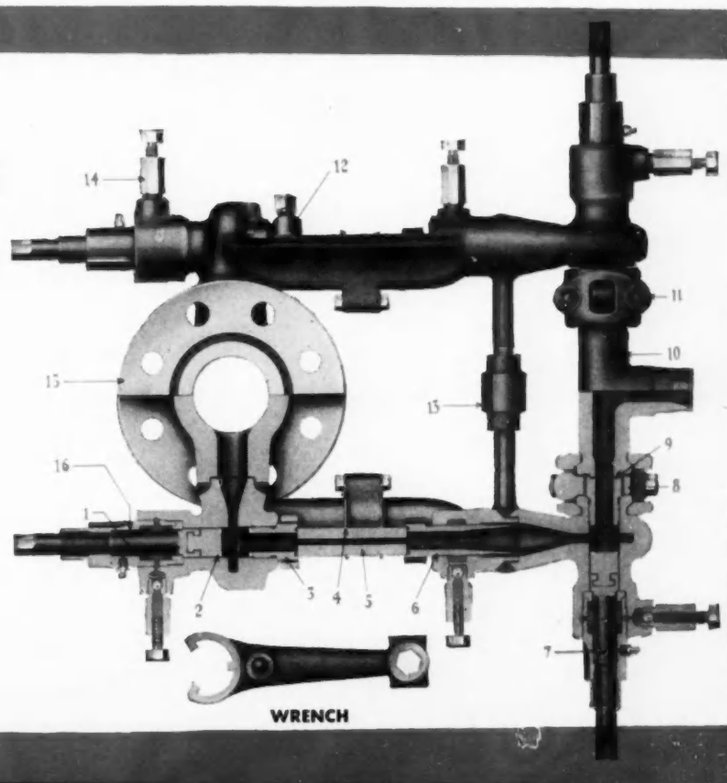
1. Up-stream valve stem; 2. Valve; 3. Valve seat; 4. Bean holder; 5. Bean; 6. Clamp screw; 7. Down-stream valve stem; 8. Lock ring; 9. Gasket; 10. Flow tee; 11. Coupling; 12. Lock ring; 13. Jack; 14. Plastic packing gun; 15. Upper and lower connections; 16. Bonnet.



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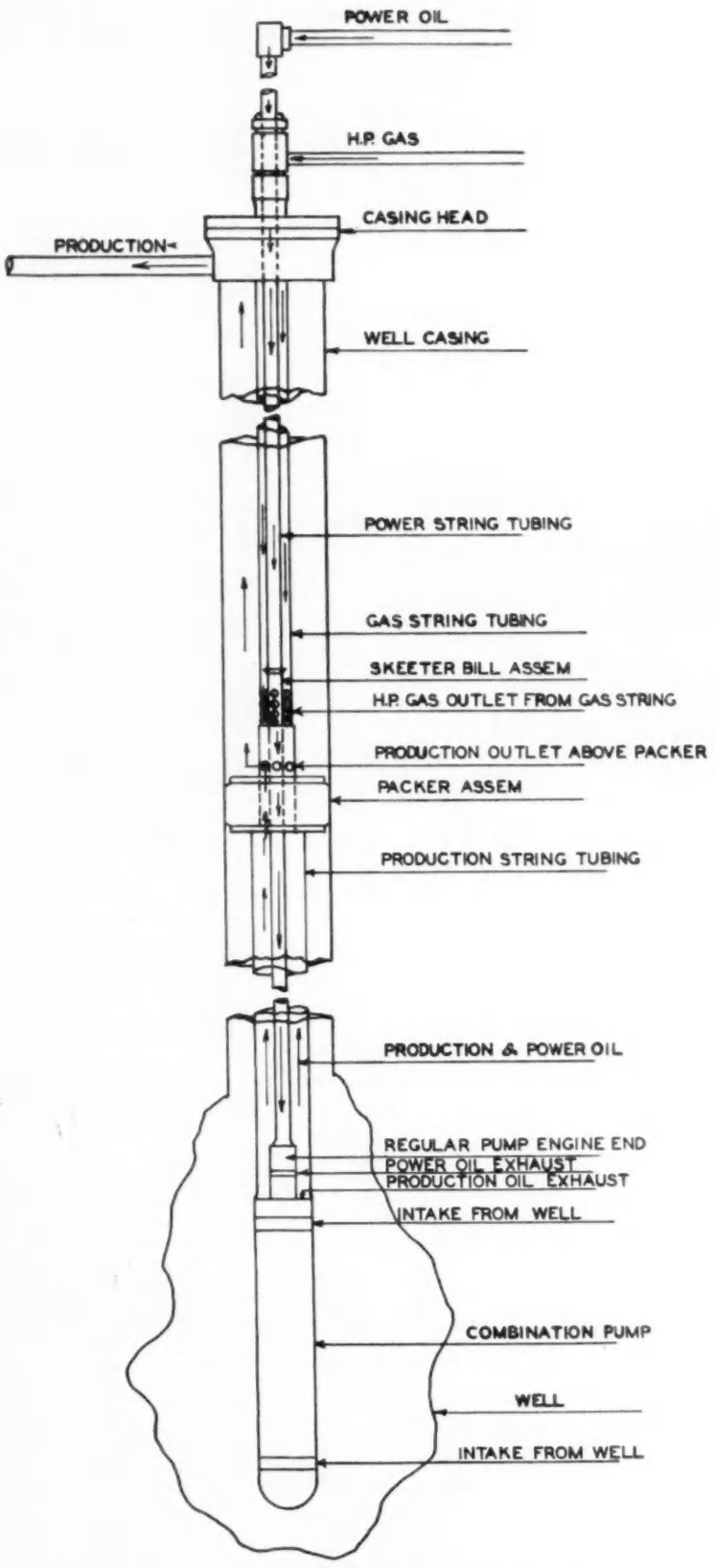

FIGURE 8
Combination Hydraulic Pump and Gas Lift Installation.

centrifugal pump combination method was that of high capacity, and when operating at high capacity operating costs were low. Gas input-factors were reduced greatly, but the reduced gas consumption was partly offset by the cost of the electric power required to operate the pump. Performance data on wells produced by the centrifugal pump combination method are given in Table 10.

Accumulations of paraffin on the walls of the casing in combination methods were treated similarly to those when employing straight gas-lift. As reservoir pressures declined, production also declined, and a point was reached where, in some cases, abnormal gas/oil ratios, interfered with the action of the centrifugal - pump combination method to the extent that it became desirable to replace the combination method with the straight centrifugal pump.

Combination Gas-Lift With Hydraulic Pump

In this method (see Figure 8), the hydraulic pump was run on a string of 500 feet of 5-inch casing, running the 1¼-inch power oil tubing inside the 5-inch casing as lowering of the pump proceeded. At the upper end of the 5-inch casing, a packer assembly was attached, and the entire assembly was run on a 3-inch tubing string so that the hydraulic pump was suspended close to the bottom of the well. A string of about 6000 feet of 1¼-inch tubing was then run inside the 3-inch tubing to a shoe and connected to the portion of the 1¼-inch tubing inside the 5-inch casing. The 3-inch tubing was perforated above the packer.

In operation, the power oil was pumped down the 1¼-inch tubing thus actuating the hydraulic pump. The oil from the reservoir, as well as the exhaust power-oil was lifted above the pump to the perforations above the packer, where it entered the casing. Compressed gas was admitted at the surface to the annular space between the 3-inch and the 1¼-inch tubing strings and passed through perforations into the casing just above the packer, where the gas mixed with the oil, lifting it by straight gas-lift action to the surface.

In this combination method, the pump lifted the oil from the reservoir to the packer by straight pumping action, thus providing an artificial submergence in the casing at the packer for the lifting re-

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TABLE 11
Performance Data on Operation of the Combination, Gas-Lift, Hydraulic, Pump Method in the Oklahoma City Field

No.	Barrels Per Day	Cu. Ft. Input Gas		Cu. Ft. Output Gas	
		Total Per Day	Per Barrel	Total Per Day	Per Barrel
1	893	2,334,000	2,316	3,108,000	3,411
2	1,470	2,763,000	1,800	3,263,000	2,220
3	1,550	2,646,000	1,700	5,946,000	3,814
4	1,727	3,528,000	2,043	7,228,000	4,185

quirements of straight gas-lift action above the packer. Performance data on the use of this method are given in Table 11.

The combination, hydraulic-pump method appears to be suitable for wells having low reservoir pressures and yet which are capable of producing a considerable quantity of oil.

While entrance of considerable loose sand into the pump is not desirable, considerable quantities of sand have been handled. Likewise, in a well producing much gas, the capacity of the pump is reduced by the quantity of gas that must pass through the pump; and yet, as noted in the examples in Table 6, the method was operating when handling up to 3,700,000 cubic feet of formation gas per day.

The hydraulic pump possesses the advantage of speed control at the surface by the quantity of power-oil pumped to the pumping engine of the pump.[14]

Combination Gas-Lift Method With Plunger Pump

After straight gas-lift in the Oklahoma City field reached the stage where the capacity was much reduced by reason of low reservoir pressures, especially when using casings of 6⅝ inches or 7 inches diameter, trials were made with a plunger pump in combination with gas-lift. This pump was run on a string of 2½-inch tubing, and packer was set above the pump. Compressed gas was admitted to the casing at the surface to drive the pump. The exhaust gas from the pump, and the oil lifted by the pump, became mixed above the pump and lifted the oil to the surface by continuous gas-lift action.

Trials were made in a few wells in the Oklahoma City field by this method and gave promise of success, but the experiments were impeded by lack of observance of the basic principles underlying the gas-lift part of the operation. Another obstacle was the lack of control over proper distribution of the gas required to operate the pump, and the additional gas required to gas-lift the oil to the surface.

Intermittent Flow Without Chamber or Standing Valve

The intermittent method of flowing wells without chamber was employed in some wells of the Lower Simpson formation where the sand was rather tight, after continuous gas-lift ceased to function satisfactorily and after input factors increased to excessively high points. Presence of considerable loose sand does not interfere with this method of flowing wells since there are no valves in the well to become worn or obstructed. A few wells in the Fair Park area of the Oklahoma City field are still operating by means of this method, at intervals of about one hour. Data on the operation of this method are given in Table 12.

TABLE 12
Performance Data on Intermittent Flow without Chamber in the Oklahoma City Field

No.	Casing Diameter	Barrels per Day			Cu. Ft. Input Gas		Cu. Ft. Output Gas	
		Oil	Fluid	Percent Water	Per Day	Per Barrel	Per Day	Per Barrel
1	9"	68	380	82	2,056,000	5,430	2,460,000	6,587
2	9"	51	482	89	2,654,000	5,506	2,913,000	6,043
3	9"	41	447	91	2,696,000	5,949	2,918,000	6,502
4	9⅝"	33	77	57	1,916,000	24,746	3,300,000	42,610
5	9⅝"	23	98	77	1,209,000	12,267	1,574,000	16,005
6	9⅝"	20	121	84	1,133,000	9,366	1,520,000	12,561

The gas-factors per barrel noted in Table 12 are far from being low, but they are lower than would be the case if continuous gas-lift were employed. Wells in this area produced with conventional methods are handling less fluid per day than these wells on intermittent flow, and the down time with the gas-lift operations are very much lower than with the other methods where breakages are of frequent occurrence.

Intermittent Flow With Valve and Packer, and With Extension

Intermittent flow in the Oklahoma City field with valve, chamber, and packer assembly both with and without chamber extension, reached considerable proportions in wells completed with 6⅝-inch and 7-inch casing, also in a few wells completed with 9-inch casing, after reservoir pressures declined to the point where input gas-factors became excessively high. Approximately 140 installations of bottom-hole intermitters were made in the Oklahoma City field.[15]

The bottom-hole intermitter assembly consisted of a packer through which the tubing is run with valve on the lower end of a chamber and with packer set around the chamber. The oil entered the well, passed through the standing valve and up through the chamber into the casing above the packer. Compressed gas was admitted at the surface through the tubing and passed into the casing through perforations in the chamber, lifting the oil to the surface largely through gas-displacement action.

TABLE 13
Tests Giving Intermitting Intervals in 9-in. Casing in the Oklahoma City Field

No.	Flowing Interval Minutes	Barrels per Day	Input Gas-Factor Per Barrel
1	30	260	1,250
2	60	200	900
3	75	160	850

Tests were made to determine the best interval at which to admit the gas. In most cases, the timing of the surface intermitter was such as to close off the input gas when the upper level of the slug of oil reached the surface. In some cases, the opening and closing of the input gas valve was handled manually. Tests made to determine the best interval of flow in a well provided with 9-inch casing and 3-

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2. Now you can afford to provide all wells with tubing protection. BJ SHORTYPE C Tubing Catchers are ideal for shallow wells or for wells of average depth, and are priced so low that one should be on every producing well. Can be provided with a BJ ANCHOR to stop "tubing breathing".

3. Why use unsafe, discarded drilling hooks for tubing jobs? BJ TUBING HOOKS are made for *one specific purpose only* — the safe, convenient and economical handling of strings of tubing. The BJ Locking Arm when open (as pictured) serves to pick up the elevator links, and then closes and locks to form a C-link, which increases the strength of the hook and prevents the links "jumping" the hook. Made in 3 sizes for 30-ton, 50-ton, and 75-ton loads.

4. BJ SNAPON Tubing Tongs completely encircle the tubing and lock in position. They ratchet perfectly, but can't come off the tubing until released by the operator. A handy "back-up" lever permits you to take care of cross-threads without removing tong from tubing.

5. BJ ROD ELEVATORS have operating latches both front and rear to speed up rod pulling jobs. The solid, one-piece body is fully heat treated and stands a lot of hard, rough usage, while it holds the rods vertically suspended — safe against kinking. Made in a Light Type for shallow wells, and a Heavy Type to carry the longest rod strings with a wide safety margin.

6 & 7. BJ ROD HOOKS also have the exclusive "locking arm" which picks up the rod elevator bail quickly and safely, — then closes and locks to provide a strong C-link. This locking arm not only provides greater strength, but prevents the elevator bail from "jumping" the hook. View 6 shows the Type for 10-ton loads; a similar type handles 15-tons of rods; while the "20" (shown in view 7) has two enclosed relief springs for handling the longest rod strings without burring the threads.

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TABLE 14
Performance Data on Wells Produced with Bottom-Hole Intermitter in the Oklahoma City Field

No.	Barrels per Day	Barrels per Flow	Interval in Minutes	Cu. Ft. Input Gas		Lbs. Pressure Between Flows
				per Day	per Barrel	
1	534	6.5	17½	1,455,000	2,727	175
2	510	4.5	12½	2,100,000	4,130	135
3	458	...	...	770,000	1,680	155
4	441	6.0	19½	1,550,000	3,514	130
5	414	9.0	31½	1,260,000	3,038	105
6	352	6.5	26½	1,340,000	3,808	185
7	310	3.5	16	2,140,000	6,905	75
8	244	2.5	14	675,000	2,769	50
9	171	2.5	10	2,050,000	11,918	58
10	95	3.0	45	219,000	2,304	55
11	31	0.5	23	485,000	15,680	20
12	14	5.0	510	80,000	5,695	10

inch tubing are given in Table 13.

It may be observed in Table 13 that greater frequency in the flowing interval resulted in a larger daily production, although this was accomplished at the expense of a higher input gas-factor. The interval actually employed was selected with reference to the production allowed per day. Data on the use of this method in wells with various productive possibilities are given in Table 14.

After reservoir pressures had declined to a low point and daily allowables were low, there was an object in using the bottom-hole intermitter rather than straight gas-lift, even in wells with large casing, in that input gas-factors would be reduced in some cases. Most of the wells in the field were serviced with gas from gas lines at a charge of 8 cents per thousand cubic feet, and after input gas-factors increased to a high point, the cost for gas on straight gas-lift increased materially, in consequence of which resort was had to intermitting to reduce the lifting costs. In wells with small casing after the reservoir pressures were low, larger daily production could be made on intermittent flow than with straight gas-lift.

In the course of time, more wells in the newer drilled sections were completed with larger casing sizes, allowables were increased, and more operators installed their own gas-lift plants, thus reducing greatly the cost of gas. Moreover, with the larger sizes of casing, it was found that the centrifugal pump, combination method would lift the oil in much greater volume and with lower input gas-factors than any form of intermittent flow, therefore, continuous gas-lift was followed by combination gas-lift methods almost exclusively.

Intermittent Flow With Plunger-Lift

The plunger-lift was employed in nearly 100 wells in the Oklahoma City field, after natural flow ceased, and after continuous gas-lift in wells with 6⅝-inch and 7-inch casing was accompanied by high input gas-factors.

Tubing sizes employed with the plunger-lift in the Oklahoma City field were 2½ inches, 3 inches, and 4 inches. The capacity of the plunger-lift with these sizes of tubing in this field are shown in the graphs in Figure 9. Performance data on the plunger-lift at Oklahoma City are given in Table 15.

FIGURE 9
Capacity of Plunger Lift at Oklahoma City.

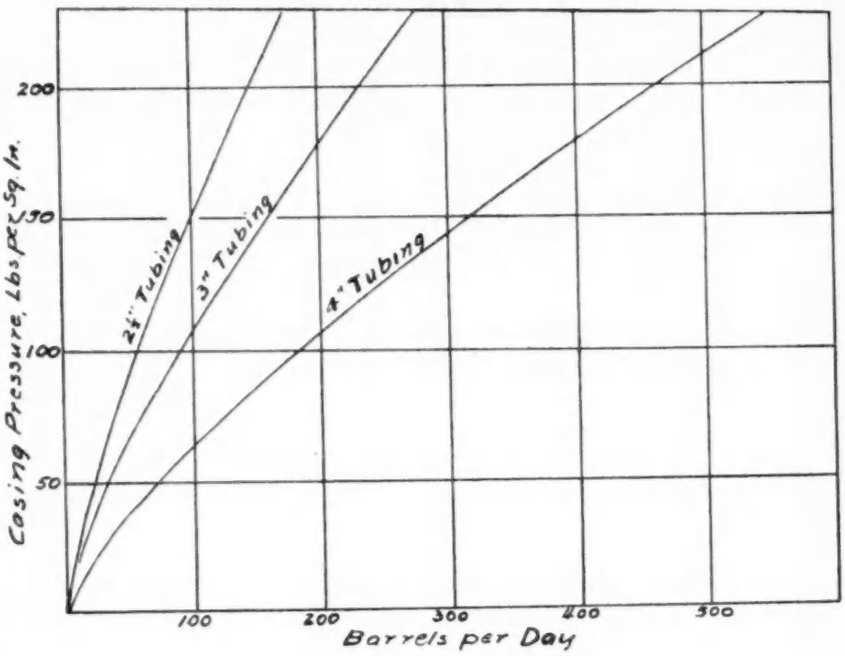

TABLE 15
Performance Data of Plunger-Lift Operations in the Oklahoma City Field

No.	Tubing Diameter	Barrels Lifted Per Day	Input Gas-Factor Per Barrel	Casing Pressure Lbs. per Sq. In.
1	2½"	160	2,695	...
2	2½"	92	2,325	...
3	2½"	73	....	122
4	2½"	68	....	124
5	2½"	50	1,050	49
6	2½"	37	7,600	119
7	2½"	25	....	52
8	3"	138	....	165
9	3"	108	3,685	113
10	3"	82	3,890	84
11	3"	65	4,590	67
12	3"	39	....	41
13	3"	19	....	34
14	4"	413	2,020	215
15	4"	302	2,929	161
16	4"	220	3,231	86
17	4"	166	3,600	87
18	4"	97	537	49
19	4"	11	5,011	49

Plunger-lift flow is always through the tubing, which is reamed to a smooth bore so that a close-fitting, valved plunger can pass up and down the entire length of the tubing. The plunger drops through the upward flowing stream of gas and through the accumulated column of oil close to the bottom of the well, and strikes a

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TABLE 16
Operating Costs for Compressing Gas at Oklahoma City

YEAR	H.P. of Plant	M. Cu. Ft. of Gas Compressed	Total Operating Expense	Total Expense per M. Cu. Ft. Cents	Expense for Labor per M. Cu. Ft.	Expense for Lubricant per M. Cu. Ft.
1934	5,300	528,328	$ 8,059.47	1.53	...	...
1935	5,300	3,933,421	29,024.62	0.74	...	...
1936	5,300	4,078,326	31,429.61	0.74	...	...
1937	5,300	3,979,149	33,389.92	0.84	0.47	0.08
1938	5,300	1,383,803	13,403.73	0.97	...	...
1939	5,300	895,367	11,668.01	1.30	...	...
1937	1,040	2,039,155	$20,070.84	0.98	0.46	0.09
1938	1,040	1,328,539	11,641.70	0.88	0.44	0.12
1939	1,040	1,339,690	9,221.85	0.69	0.40	0.27

bumper, thus closing the valve in the lower end of the plunger. The gas flowing upward lifts the plunger with its load of oil to the surface, where the oil is discharged, the valve in the plunger falls from its seat, and the plunger again descends to the bottom.

Paraffin accumulations caused the plunger to stick, which difficulty was remedied to some extent by using a plunger of a certain design. Paraffin troubles could probably have been remedied to a great extent by using a paraffin wash at regular intervals similar to that employed in straight gas-lift operations at a later date. Sand also caused some trouble with the plunger sticking, and yet surprisingly large quantities of sand were produced with this method.

Input gas-factors with the plunger-lift when producing comparatively small volumes of oil were considerably lower than on continuous gas-lift. In one case, four wells on plunger-lift in this field were handled by one 90-horsepower compressor discharging gas at about 100 pounds. Formation gas is used to maximum extent in the plunger-lift, probably to better advantage than in any other gas-lift method. Some wells in this field were produced on natural flow, followed by plunger-lift, until they were abandoned.[16]

The plunger lift operated to better advantage in wells of the lower Simpson zone where reservoir pressures remained higher for a given flow into the well than in the Wilcox zone.

Types of Compressors

Various types of compressors were employed in the Oklahoma City field, including 60-horsepower, two-stage compressors, belt driven from electric motors; 90-horsepower, 165-horsepower, 200-horsepower, and 230-horsepower, two-stage, horizontal compressors driven direct by gas engines; 190-horsepower, 260-horsepower, and 400-horsepower angle-type of compressors direct driven by gas engines, both two-cycle and four-cycle types.[17, 18]

In the out-of-town areas of the field where plenty of ground space was available, the horizontal type of direct-driven compressor was satisfactory even in the 90-horsepower size of unit. In the townsite areas, it was necessary to reduce the ground space occupied, and to reduce noise from vibration and from exhaust to a minimum, which resulted in preference being given to the vertical engine type with horizontal compressor cylinders, or the so-called "angle-type."

Depreciation charges were dependent upon the length of time that the plant was in operation and on the salvage value. Salvage approximated 35 to 40 percent of the total installed cost of the plant.

Operating costs ranged from ½ to 2 cents per thousand cubic feet of gas compressed. Operating costs on two plants, one of 5300-horsepower capacity which at times was only partly loaded, and one of 1040-horsepower capacity, over a given period of time were as given in Table 16.[19]

Operating pressures at the compressor plants varied from 100 to 800 pounds per square inch. The lower pressure was required in plants situated close to the wells serviced, thereby entailing minimum friction loss in passing through the pipe lines to the wells. The lowest pressure was obtained in a plant operating only plunger-lifts, which was about 100 pounds per square inch under normal conditions, after the reservoir pressure had declined to a low point.

"Kick-off" pressures in the plunger-lift wells were up to 200 or 300 pounds per square inch. Long service lines required higher discharge pressures at the plants, both to handle wells being kicked off from time to time along the lines and to overcome friction losses in these long lines. In some instances, small 60-horsepower compressor units, driven by electric motors or multiple-cylinder gas engines were required to boost the pressure of the gas received from the regular service lines to the pressure required for operating the wells.

Operating costs in a large compressor plant, particularly for labor, are lower than in small plants, but this lower labor-cost for large plants is often offset by the higher first-cost of a plant required for higher pressures and for higher pipe line costs. It is not possible in large plants for the plant labor to handle any of the well operations, such as was found to be possible in the Oklahoma City field when operating small plants situated close to the wells being serviced, thereby enabling the labor expense to be partly apportioned against the well operations.

Conclusions

In reviewing gas-lift methods and operations at a time when most of these operations have passed into history, bearing in mind the conditions that applied to wells of very large capacity, with great thickness of highly permeable sand, with oil of 35° to 40° gravity, and with formation-gas content that was not high and which declined in volume at a fairly rapid rate, it would appear as if wells under such conditions which are likely to produce 250,000 to 2,500,000 barrels of oil in their life, should be completed with the largest diameter of casing practicable to use. Such wells should be produced at maximum capacity to make use of the formation gas to best advantage, inasmuch as production at maximum capacity in the type of field represented by the Oklahoma City field results in lower gas/oil ratios and prevents gas-caps from forming. However, when wells are prorated to a small daily allowable, maximum capacity methods cannot be employed throughout the entire month during periods of over-supply of producible oil, but it usually happens that at some period in the life of the field, maximum capacity methods do come into use, such as is the case in the Oklahoma City field, and was the case in the Seminole field, and is now the case in various other fields of Oklahoma and Illinois.

Natural flow is the cheapest method to use as long as it functions satisfactorily. In fact, in the early years of many such deep

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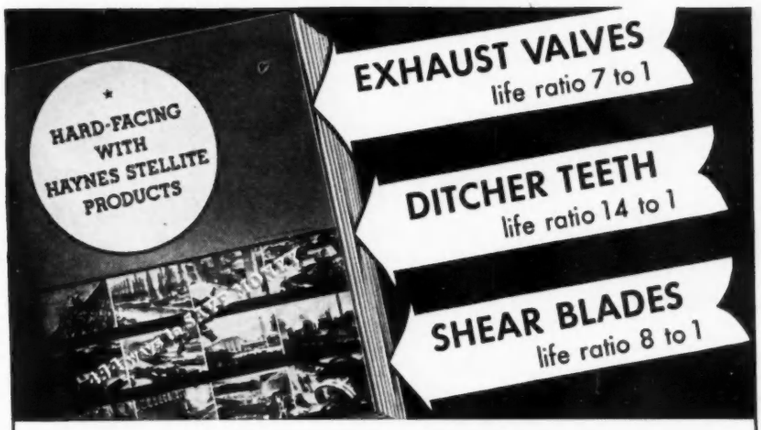

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seated fields, it is the only method possible to employ. Continuous gas-lift is the logical method to follow natural flow, since it makes use of the formation gas that is still present in the reservoir for aiding in flowing the oil. In a field such as Oklahoma City, where wells have large capacity with low reservoir pressures, continuous gas-lift can probably be succeeded advantageously by some form of combination gas-lift. If the reservoir rock is tight, in which case fairly high reservoir pressures result in a flow into the well that is comparatively small in quantity, some type of intermittent flow can be employed profitably.

Various factors enter to modify any program laid down in advance of actual operations, such as sand troubles, sulphur-gas troubles, water encroachment, crooked holes, proration schedules, etc.

In some of the edge wells in the Wilcox zone of the Oklahoma City field, where water encroachment made its appearance early and where it maintained to some extent the reservoir pressure, wells were produced to abandonment on natural flow, followed by continuous gas-lift and plunger-lift.[16] In other wells in the Simpson zone, where reservoir pressures remained fairly high and water encroachment took place at an early date, wells will have been carried to abandonment on continuous gas-lift, followed by intermitent flow in some cases. Thus we see to what extent the method employed, even in the same field, depends upon the conditions existing in the reservoir, and on those conditions imposed by the operating necessities of the owners of the wells.

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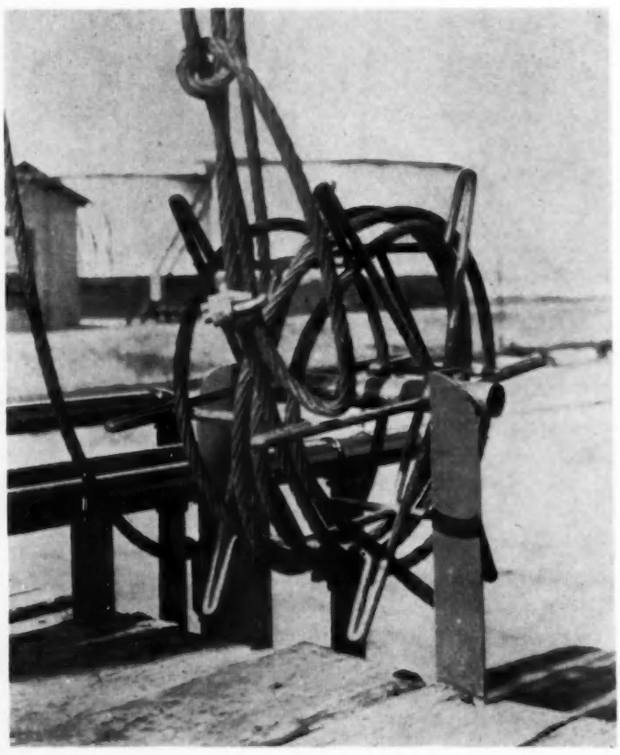
Derrick Reel Holds Tubing in Place

WELLS that are serviced by means of a portable pulling unit frequently are not equipped with either a bull wheel or calf wheel on which to spool the tubing pulling line between jobs. The usual procedure, therefore, is to tie all the loose ends and loops together and hold them over to the floor railing or to the corner of the rig by a length of soft-rope. This practice never proves to be entirely satisfactory, as the loosely held lines often become tangled, and should they ever break loose in a strong wind or sway into any part of the moving pumping equipment, serious damage may be caused to the well or surface equipment.



Realizing the hazard that such a practice presented, the superintendent of a lease in one of the California fields recently designed, and instructed the welder to build up in his spare time, a small reel that could be fixed permanently to the floor in an out-of-the-way corner of each derrick.

Made entirely of scrap material, the small reel, illustrated in the accompanying photograph, was bolted securely to a side floor beam. The six spokes and braces were made of sucker-rod material and were welded to the 30-inch-long axle of 2-inch pipe. The effective diameter of the reel on which the cable lies is approximately 24 inches, with the bent-over portions of each spoke projecting 6 inches farther out, being used for the hand-holds in turning the reel. The effective width of the reel is 12 inches, but at the point where the spokes are welded to the axle, the width is nearer 24 inches in order to lend strength to the structure. Each end of the axle was projected through a hole cut out of the side of the 3-inch angle iron supports.

In one end of the axle several ½-inch holes were drilled through the pipe at divergent points on the circumference. When the line is spooled up as tightly as possible a steel pin is dropped through one of the holes and when the reel is released, the pin will be forced against the angle-iron support, thus locking the reel in place. Near the bottom and to the side of one of the angle-iron supports, a hook was welded, over which the loop end of the tubing line can be firmly secured while the reel is being tightened up.

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MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Surplus Gasoline Chief Defect in Oil Situation

[*Continued from page 14*]

percent, or almost 6,000,000 barrels, and that gain more than compensated for the decrease in exports.

Market requirements for light fuel oils failed in September to show an increase over September, 1939. Domestic demand was up 7 percent, but exports were off more than 2,000,000 barrels, or 10.5 percent. Total demand was, therefore, 10.5 percent smaller than in September of last year.

In the first 9 months of 1940, total demand for gas oil and distillate fuel showed an increase of 6.5 percent over that in the like months a year before, with domestic consumption up 18 percent and exports down 38 percent.

The markets absorbed 5.2 percent less heavy fuel oil in September, 1940, than in September, 1939, with both domestic and export business off approximately that percentage. For the first 9 months of this year, however, total demand for residual fuel oil was 3.8 percent larger than in the similar period a year ago, as a 4.6 percent gain in domestic consumption more than offset a 9.4 percent decrease in exports.

Lubricants were required in 21 percent smaller volume in September, 1940, than in September, 1939, as domestic consumption was down 2.6 percent, while exports were off 61 percent. But for the first 9 months of 1940, total demand for lube oils was 3 percent larger than in the like months a year before. Domestic demand was up 3.8 percent, and exports 1.5 percent.

Gasoline Demand Expected to Continue Above Year Ago

SUMMARY OF BUREAU OF MINES FORECASTS FOR DECEMBER, 1940

Barrels

	Forecast December, 1940	Forecast November, 1940	Actual December, 1939	Percent Change for December, 1939–1940
Demand for Motor Fuel*:				
Domestic demand	46,400,000	49,900,000	43,807,000	+ 5.9
Exports	1,800,000	1,700,000	3,136,000	—42.6
Total demand	48,200,000	51,600,000	46,943,000	+ 2.7
Supply of Motor Fuel:				
Straight-run and cracked gasoline production	46,200,000	45,180,000	47,606,000	— 2.9
Natural gasoline used at refineries	4,020,000	4,220,000	4,018,000	+0.05
Total refinery production	50,220,000	49,400,000	51,624,000	— 2.7
Benzol and other natural gasoline	1,180,000	1,300,000	998,000	+18.2
Imports	.....	.....	3,000	.....
Decrease in finished stocks	.....	900,000	.....	.....
Increase in finished stocks	3,200,000	.....	5,682,000	—43.7
Available Supply	48,200,000	51,600,000	46,943,000	+ 2.7
Crude Oil Requirements:				
Percent yield of gasoline from crude	43.00	43.4	44.98	— 1.98†
Refinery crude required	107,460,000	104,100,000	105,835,000	+ 1.5
Daily average	3,466,500	3,470,000	3,414,000	+15.4
Foreign crude runs	3,600,000	3,400,000	2,367,000	+52.1
Exports	3,900,000	3,900,000	4,656,000	—16.2
Fuel and losses	2,600,000	2,500,000	2,548,000	+ 2.0
Total demand for domestic crude	110,360,000	107,100,000	110,672,000	— 0.3
Daily average	3,560,000	3,570,000	3,570,100	— 0.3
Increase in domestic stocks	.....	.....	4,448,000	.....
Actual production	.....	.....	115,120,000	.....
Daily average	.....	.....	3,713,500	.....

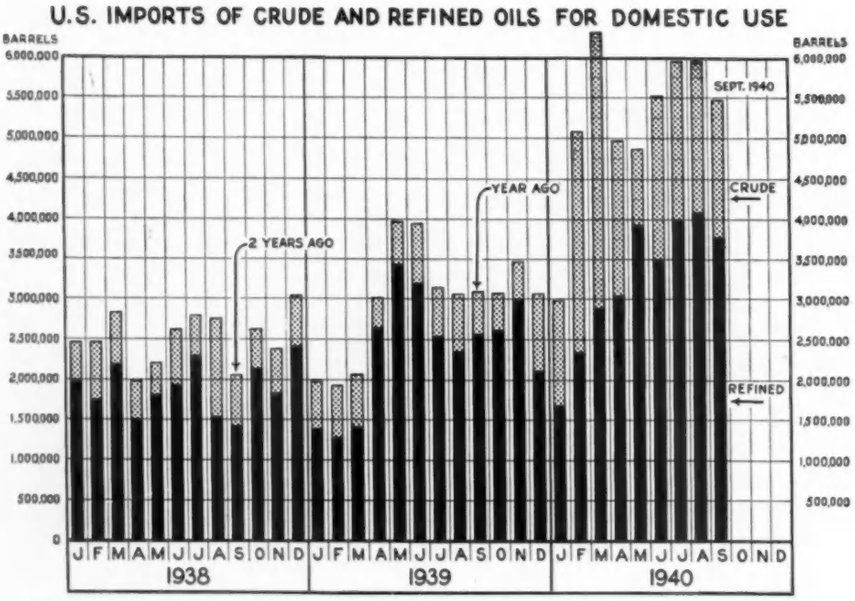
* The term "Motor Fuel" as used in this report includes gasoline, naphtha and benzol used for all purposes, but does not include heavier distillates used in the operation of tractors or burned in Diesel engines.
† Indicated decrease in percent yield of gasoline from crude.

Oil Imports for Domestic Use Up Sharply

Figures indicate barrels and are from Bureau of Mines.

MONTH	Crude Oil	Refined Products	Total
January:			
Jan., 1939	1,373,000	609,000	1,982,000
Jan., 1940	1,664,000	1,321,000	2,985,000
Change	+21.2%	+117.1%	+52.0%
February:			
Feb., 1939	1,266,000	654,000	1,920,000
Feb., 1940	2,343,000	2,731,000	5,074,000
Change	+85.0%	+320.0%	+164.0%
March:			
Mar., 1939	1,404,000	659,000	2,063,000
Mar., 1940	2,895,000	3,410,000	6,305,000
Change	+106.2%	+417.4%	+205.6%
April:			
April, 1939	2,648,000	366,000	3,014,000
April, 1940	3,041,000	1,948,000	4,989,000
Change	+14.8%	+432.0%	+65.5%
May:			
May, 1939	3,434,000	529,000	3,963,000
May, 1940	3,921,000	934,000	4,855,000
Change	+14.2%	+76.5%	+22.5%
June:			
June, 1939	3,196,000	750,000	3,946,000
June, 1940	3,488,000	2,056,000	5,544,000
Change	+9.1%	+174.1%	+40.5%
July:			
July, 1939	2,539,000	608,000	3,147,000
July, 1940	3,981,000	2,000,000	5,981,000
Change	+56.8%	+228.9%	+90.0%
August:			
Aug., 1939	2,346,000	717,000	3,063,000
Aug., 1940	4,074,000	1,898,000	5,972,000
Change	+73.7%	+164.7%	+95.0%
September:			
Sept., 1939	2,553,000	541,000	3,094,000
Sept., 1940	3,772,000	1,712,000	5,484,000
Change	+47.1%	+216.5%	+77.2%
1st 9 Months:			
1939	20,759,000	5,306,000	26,065,000
1940	29,179,000	17,930,000	47,109,000
Change	+40.5%	+237.9%	+80.7%

U.S. IMPORTS OF CRUDE AND REFINED OILS FOR DOMESTIC USE



Source of Data: Bureau of Mines.

Conditions in Texas Worse Than in Several Years

Asserts Humble President

WITH the declaration that conditions of the oil industry are worse today than anytime since the chaotic days of serious over-production in East Texas, and that the disturbing factors are of such proportions considerable harm threatens producers if the problems are not solved immediately, President H. C. Wiess of Humble Oil & Refining Company sent a letter to all parties from which his company purchases oil. The letter discussed some of the problems, particularly those in Texas, and urged adoption of a program that would (1) keep the state's production on a stable level within the Bureau of Mines estimate of demand, (2) application and adherence to equitable principles for allocating of allowables between fields, and (3) recognition that demand for a given grade of crude should be shared equitably by all pools producing that grade and crude and not by a few fields.

A copy of Wiess' letter is reproduced herewith:

"In our opinion, present conditions in the industry are worse than at anytime since the chaotic days of serious over-production in East Texas when the price of crude was driven far below the average cost of production. Disparities and maladjustments within the industry have become so great that they will force major adjustments unless soon corrected. Frequent changes in statistical and economic relationships always characterize the industry, and so long as these changes do not go too far or last too long they do not upset the industry. However, present signs show unmistakably that something is basically wrong and must be corrected before we can see the light of day. This is clearly revealed by the attached charts which present graphically the significant developments in the industry during the past four years. They show that there have been violent fluctuations in crude production in Texas; that the value of products derived from a barrel of crude has declined very sharply; that per-well production has decreased 25 percent as a result of an addition of 26,000 oil wells; that exports of crude and products have declined sharply, particularly from the Texas Gulf Coast; and that stocks of gasoline and all petroleum products have increased substantially since 1937. All agree that conditions are bad, but there is absence of agreement as to the cause. It is a human failing to seek to blame others for one's troubles, and oil men are not exempt from this failing. We hear them attribute the difficulties of the industry to excessive production in other states, to unduly large imports, or to bad practices in the refining and marketing branches of the industry. It is true that some or all of these factors have contributed to our present troubles. However, there are other factors which have lead to maladjustments as a result of developments over which we in Texas have immediate control. In order to appreciate the problems, we must first understand the basic principles of proration and their importance to the operation of the oil industry today.

"The oil industry is a very large business, ranking among the three or four largest in this country, which affects our way of life in many ways. It is a very complex industry which, because of the nature of the irreplaceable resources which it produces, is faced with many difficult problems. Public interest in oil requires that there be conservation of it, and this has lead various oil producing states to establish regulation over the industry in order to prevent waste. Since this regulation was first generally used during the 1920s, there has been a period of adjustment in which the industry has sought to work out principles which will promote efficiency and justice. The problem has been a complicated one requiring the best thought and effort of all in the industry. Outstanding among the principles evolved for handling the business is the system of ratable takings, and the regulation of production to market demand. These principles are basic to the system of posted prices, which bring the markets of the world to the lease of every producer. Without them, there would be chaos in the industry and regulation would fail to achieve its purpose of conservation and equity. Unfortunately, these essential principles have been and are being disregarded, and this disregard endangers the entire structure of the industry.

Two Disturbing Factors

"There are two practices in particular which have a disturbing influence upon the industry and are undermining its stability. The first of these practices is the constant changing of state and field allowables and production above and below market demand, resulting in sudden additions to stocks and violent drafts on stocks, so that neither the producer, nor the purchaser, nor the refiner can plan his business intelligently or anticipate what is coming next. The attached chart shows the tremendous fluctuations which have occurred in Texas' production and the erratic changes from periods of surplus production to periods of withdrawals from stocks. The demand for Texas' crude does not change rapidly. It is relatively easy to predict the market requirement for crude, and the operations of the industry would be greatly facilitated if production were regulated uniformly in relation to demand instead of with violet fluctuations above and below it.

"Closely related to the practice of permitting violent fluctuations in the production of the state is the wide variation which occurs in the production of individual fields. In many fields the production has fluctuated as much as 100 percent during months of this year. Some fields are given high allowables in one month and then cut back the following month while an exactly opposite policy may be pursued in regard to other fields. Such changes complicate the operations of both producers and purchasers. The wide variations in allowables can be illustrated by the situation for the Rincon field, where within a period of a few months the daily allowable was first cut from 2300 barrels to 1200 barrels and then increased to 5250 barrels. Under present conditions, when a purchaser enters a field he has no certainty that the connections which he acquires will continue to have the same allowable. So long as there is a vacillating policy which results in constant changes in allowables, purchasers and marketers are unable to conclude sales in safety because of fears of shortages or reluctant to take on additional connections because of the dangers of being flooded with a surplus.

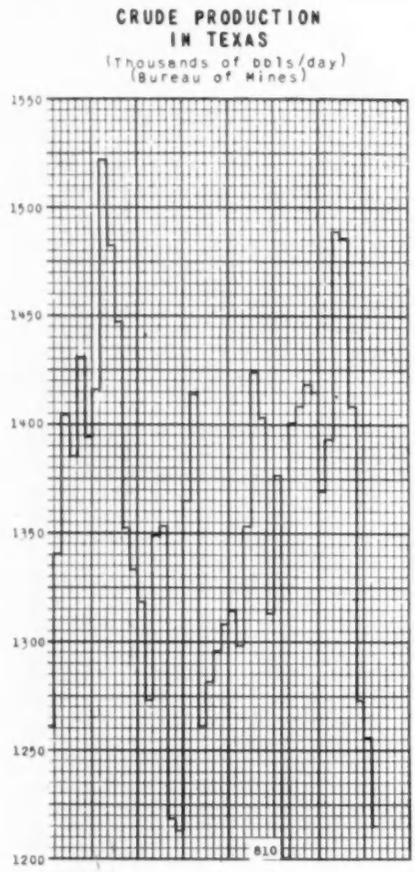
"The second of these practices which disturbs the industry is the failure to establish and observe any effective yardsticks or principles for the allocation of allowable production among the pools of the state. The problem of allocating production in a reasonable manner between pools has become of increasing importance as the number of producing fields and wells has grown rapidly. One illustration will be user here to indicate precisely how discrimination occurs and its extent. Any number of similar illustrations could be given. We will compare the Plymouth and Greta fields in Southwest Texas, both of which produce relatively comparable crudes and are substantially similar with regard to reserves and producing conditions. In January, 1937, the daily per-well allowable was 100 barrels in Plymouth and 69 barrels in Greta. In March, 1940, the daily per-well allowable was 72 barrels in Plymouth and only 21 barrels in Greta. At this time wells in the Plymouth field were getting more than three times those in the Greta field, whereas in 1937 they were getting only 40 percent more. In August, 1940, the daily per-well allowable was 32 barrels in Plymouth and 17 barrels in Greta, a difference of nearly 100 percent. In October, 1940, the daily allowable per well was 33 barrels in Plymouth and 20 barrels in Greta, a variation of 65 percent. The same degree of variation

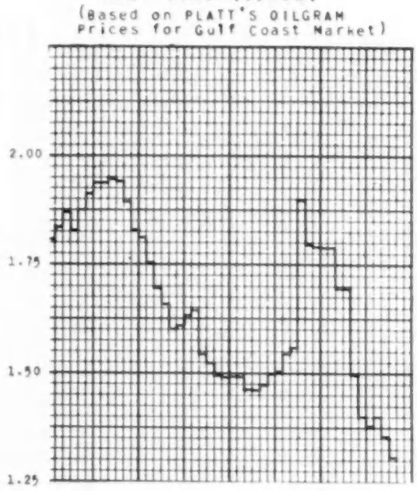
exists in the allowables per acre for these two fields, since the spacing of wells is approximately the same. This will illustrate how discrimination has increased since 1937 and how rapidly it fluctuates even at the present time.

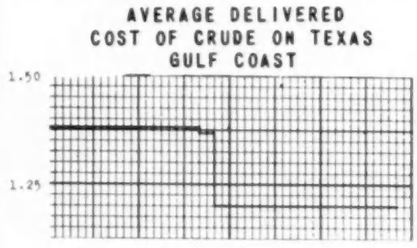
"The reason for the increasing importance of equity between fields can be demonstrated readily by comparing 1937 and 1940. In 1937 Texas had daily production of 1,398,000 barrels from an average of 72,000 wells, or 19.4 barrels per well. In 1940 Texas will have daily production of about 1,340,000 barrels from an average of 92,500 wells, or only 14.5 barrels per well. The decline in daily production for proratable wells, excluding marginal wells as defined by statute, has been from 31 barrels in 1937 to about 19.5 barrels in 1940, a decrease of 37 percent. Under circumstances such as these, where declining allowables are necessary generally because of a constantly increasing number of wells and a declining market outlet, it becomes increasingly important for all fields to be treated on a uniform and reasonable basis. If some fields are favored, by not having their allowables reduced, then the burden of reduction all falls with increasing force on other fields.

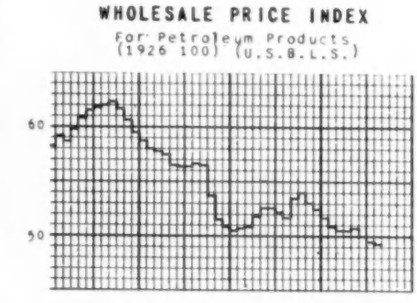
Shutdown Exemptions

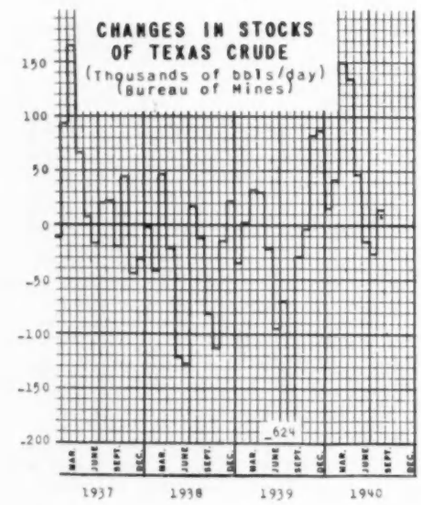
"The extent of inequity between fields has been seriously aggravated during the last several months by the granting of exemptions from shutdown orders at a time

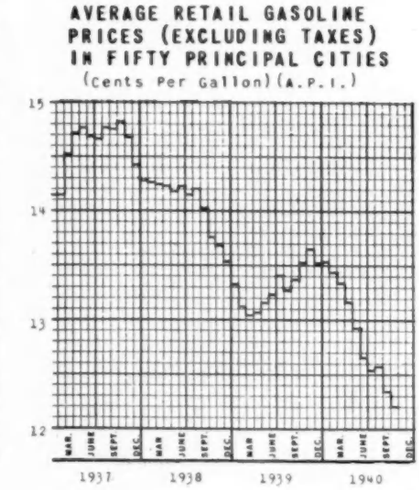


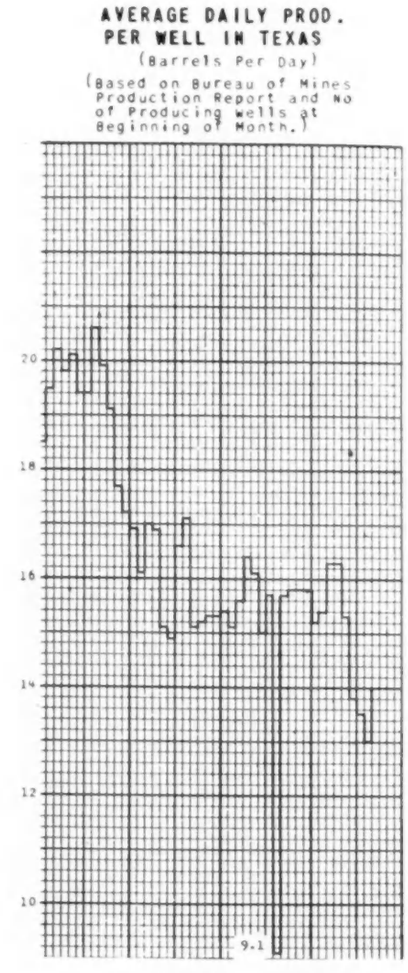

TOTAL VALUE OF PRODUCTS DERIVED FROM A BARREL OF CRUDE ON THE TEXAS GULF COAST ($/BBL)
(Based on PLATT'S OILGRAM Prices for Gulf Coast Market)
2.00
1.75
1.50
1.25

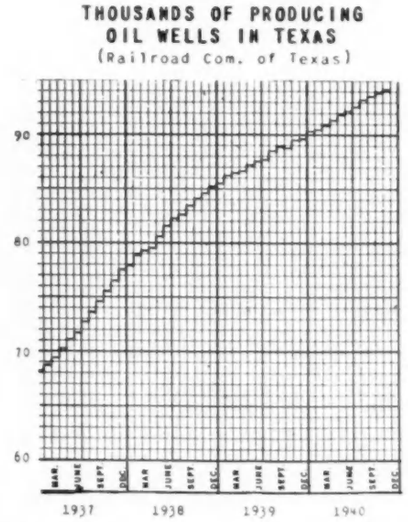




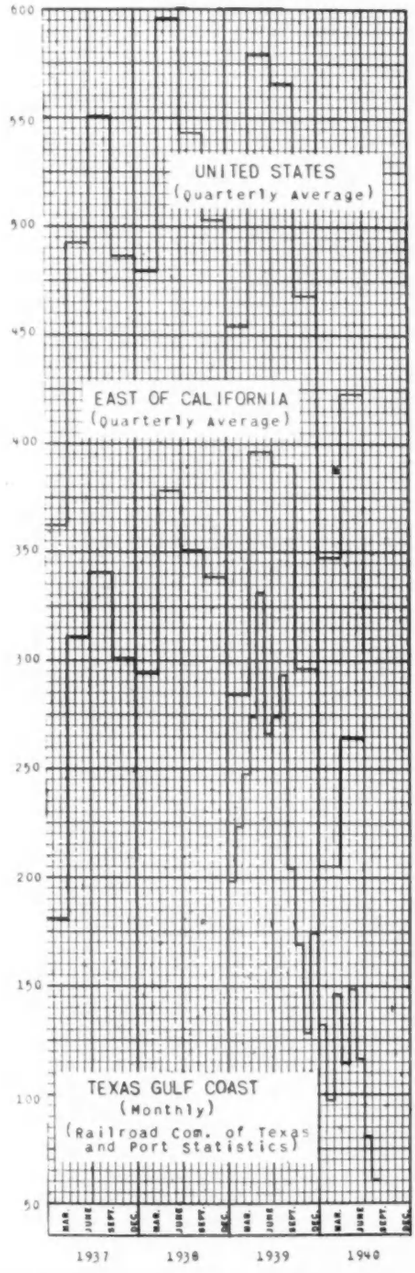


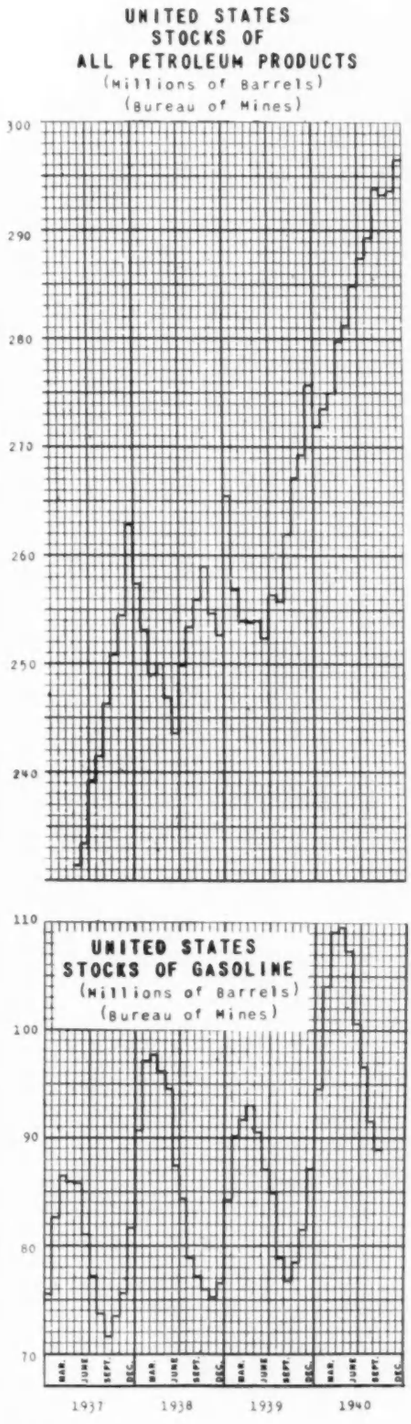






when shutdown days have increased to nine per month. In January, 1940, there were 62 fields, with 7500 wells and schedule allowable of 176,000 barrels per day exempt from the shutdowns. When the proration order was issued for September it included exemptions for 145 fields with 20,000 wells and schedule allowable of 450,000 barrels. By the latter part of October there were approximately 180 fields with an exempt allowable of 550,000 barrels per day, excluding the exempt marginal wells with production of 130,000 barrels per day. Early in November most of the exemptions from shutdowns were cancelled for this month, but there still remained nearly 40 exempt fields and there is no assurance that the practice of granting exemptions will not soon be resumed. The growth of this practice of exempting some fields from the shutdowns is grossly discriminatory to the other fields in the state. It has become a common practice to make numerous changes in field allowables after the proration order for a given month is issued. During the month of July, 63 fields were granted exemptions from the shutdowns, and 15 fields were granted increases in allowables. These fields gained nearly 50,000 barrels per day by the changes which were granted to them. In the month of August, 40 fields were added to the list of those exempt and four had their allowables increased, the net gain to these 44 fields being nearly 28,000 barrels per day. These figures illustrate the unpredictable changes which occur from day to day and complicate operations in the industry.





"The practice of granting high allowables or exemptions from shutdowns to some fields cannot be defended on the ground that the particular field enjoys a special market demand for oil which can be produced without waste. In this connection it should be recognized that there are relatively few different grades of crude, and any particular grade is produced in several fields. Therefore, the practice of attributing a stated increase in market demand to one particular field producing a given grade of crude is discriminatory to other fields producing the same grade of crude and equally entitled to consideration. If this practice is continued and extended it will result in purchasers securing their crude supplied from selected fields, leaving other fields either entirely without markets, or with materially reduced markets. This in itself is a serious threat to the stability of the oil industry, as proration must be based on the principle that all producers of a given grade of crude shall share ratably in the market outlet.

"Many operators take the attitude that these inequities affect only the producers whose allowable is involved, and show no interest in the problem when satisfied with their own allowables. As a matter of fact, inequitable allowables have a broader effect because they tend to upset the market and thereby harm all of us. The result of granting unduly high allowables to some fields is to provide a source of low-cost crude to those who purchase or refine such crude, either because the current cost of production is reduced as a result of high allowables, or because the producer is able and willing to sell at a lower price to dispose of his added volume and realize a quick return. In either case, the result is to give to those who receive unduly high allowables an artificial competitive advantage, with damage to the market structure generally. It becomes difficult to maintain the posted price principle, which is the keystone of the industry's marketing system. This is illustrated by recent developments in Southwest Texas, where high allowables have resulted in oil moving at prices which are from 10 to 30 cents per barrel below the prevailing level. Crude from several fields in this area is threatening to bring about a general reduction in prices, because it is going to market at a much lower price than other crudes in the same area. If one refiner is able to purchase crude at 21 cents per barrel less than his competitor, he thereby enjoys a differential advantage of one-half cent per gallon on his products, which puts him in a superior competitive position and literally forces competing refiners to seek lower-priced crude in self-defense. The conservation laws are for the purpose of preventing waste, and when applied should bear equitably upon all those who are subject to them. They should not be administered in such way as to influence price artifically, either up or down.

Threaten Stability

"In short, the conditions outlined above threaten the successful continuance of the whole proration and marketing system under which the industry operates: they threaten the principle of ratable participation by all producers in the markets; they threaten the stability of the crude price structure through artifical action; they threaten to prevent extension of pipe line outlets to new pools, because purchasers will prefer to secure all the oil they need

[*Continued on page 44*]

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HIGHLIGHTS IN THE WEEK'S NEWS

Washington

Ask New War Resources Board With Wide Powers

Creation of a war resources administration to take over control of all industries producing for the national defense and to plan the war-time operations of non-essential activities, is provided for in legislation introduced in Congress November 22 by Senator Robert A. Taft.

The administration would be composed of representatives of the various federal departments and agencies engaged in defense activities, and would be headed by an administrator to be appointed by the President. It would supersede the present National Defense Advisory Commission.

Under the bill, which puts into effect the industrial mobilization plan developed by the joint Army-Navy Board in 1939 after years of study, the oil and other industries essential to national defense would be brought under the control of the government through the war resources administrator, who would be authorized to:

Formulate the basic policies for the mobilization of the economic and industrial resources of the country to meet the requirements of a major war;

Make detailed plans "for the acquisition, purchase and storage of all raw, semi-processed and finished materials and supplies necessary for the national defense, and for the creation of adequate manufacturing capacity to manufacture arms, ammunition, implements of war and other equipment and supplies in such quantities, and at such rates as may be necessary in time of war";

Make plans for the reduction of the activities of non-essential industries in time of war, or when war is imminent. And for their partial or total conversion to more useful war purposes;

Coordinate the requirements submitted by the Army and Navy for military equipment, munitions and supplies, with the essential needs of other government agencies and those of the civilian population;

Make recommendations for legislation required to carry out the plans made;

Exercise all powers heretofore conferred on any official or department of the government to purchase, store or carry strategic and critical materials;

Exercise all powers conferred on any official or department to manufacture arms, ammunition, implements of war and other equipment and supplies necessary for the national defense; and

Exercise all powers conferred on any official or department of the government to construct government facilities at privately owned plants, or to lease government facilities to private manufacture.

Senator Taft explained that the National Defense Advisory Commission, made up of seven men without a chairman, "is purely advisory and it is not perfectly clear whom the members are supposed to advise."

"While much good work and much progress have been possible under the present organization," he said, "the experience of past and present wars has proven the need for a separate war resources group under the leadership of one man empowered to cut across red tape and give his undivided attention to the one vast problem of industrial teamwork for defense."

Cole Committee Report to Be Issued for Next Session

Results of the lengthy investigation of conditions in the oil industry conducted by the House Interstate and Foreign Commerce subcommittee will be embodied in a report which will be filed just prior to the convening of the next session of Congress, it was indicated last week by Representative William P. Cole, Jr., chairman of the group.

It is expected the report will be solely factual and will make no recommendations for the enactment of legislation such as the Ickes-written production-control measure, introduced by Cole in July, 1939.

While the investigation, designed to bring the 1934 study of the industry up to date, has been completed for a number of months, the subcommittee's report has been withheld because of a desire not to bring up the controversial question of oil-industry control this session, while at the same time it was not wished to brand as undesirable, either directly or inferentially, a measure which has the blessing of not the active support of the president.

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Allowables

Bureau Drops December Demand by 10,000 Barrels

Market demand for petroleum products in the final month of the year will require a daily average production of crude oil of 3,560,000 barrels, 10,000 barrels less than the forecast for this month and materially under the December, 1939, actual output, it was forecast by the Bureau of Mines November 19.

The bureau's survey of current conditions revealed possibilities of a "very substantial" increase in domestic demands for all oils during 1941, a further shrinkage of export markets and substantial increases in imports of crude and residual fuel oils, improvement of gasoline stocks and large withdrawals of distillate fuel-oil stocks from storage.

Reports to the bureau indicated that daily average crude production during the five weeks from October 5 to November 9 was 3,603,000 barrels, and runs to stills 3,538,000 barrels, with domestic crude stocks decreasing an average of 9000 barrels daily, indicating a demand of 3,612,000 barrels.

The daily average domestic production forecast by the bureau for December, however, hit the lowest figure touched since last April, and was 59,700 barrels under the output forecast for December, 1939.

"Large seasonal stocks of gasoline and distillate fuel oil might permit minimum runs to stills during the winter months, but the extent of such curtailment is limited by the indication of a very substantial increase in the domestic demand for all oils during the coming year," the report commented.

"The pressure of foreign oils seeking a market indicates some further shrinkage in exports, and substantial increases in the imports of crude and residual fuel oils.

"The position of gasoline stocks may be improved by moderate winter additions to storage, by accumulation of defense stocks of aviation gasoline, and by the substantial increase in domestic demand indicated for next year.

"The unusual accumulation of distillate fuel-oil stocks, due in considerable part to sharply declining exports, indicates large winter withdrawals from storage and moderate refinery yields. Normal demand may show only a moderate increase over the abnormal demand for heating oils of last winter.

"Residual fuel-oil stocks are substantially below the level of last year. A possible sharp increase in domestic demand would require either greater runs than are necessary for other products, increased yields, or larger imports."

Motor Fuel Demand Up

Explaining its forecast, the bureau said domestic demand for motor fuel in December is estimated as 46,400,000 barrels, or 6 percent higher than the actual for December, 1939. Exports of motor fuel, based upon forecasts by the

principal exporters, are expected to be 100,000 barrels higher than the November estimate, but the total of 1,800,000 will be 1,300,000 barrels less than the actual exports a year ago.

Stocks of finished and unfinished gasoline were 81,907,000 barrels on September 30, it was said, and statistics of the American Petroleum Institute show a decline of approximately 1,500,000 barrels during October, which would place them at about 80,400,000 barrels at the close of that month. If stocks are further reduced by the 900,000 barrels estimated by the bureau for November, they will be approximately 79,500,000 barrels at the close of this month, and the report anticipated an increase in finished stocks of 3,200,000 barrels during the final month of the year.

Benzol production and direct sales of natural gasoline are estimated as 1,180,000 barrels, giving an indicated refinery production of 50,220,000 barrels, which the bureau distributed among the various refinery districts as follows:

East Coast, 6,730,000 barrels; Appalachian, 1,820,000 barrels; Indiana-Illinois, 10,540,000 barrels; Oklahoma, 3,080,000 barrels; Kansas, 2,760,000 barrels; Inland Texas, 3,450,000 barrels; Texas Gulf Coast, 11,610,000 barrels; Louisiana Gulf Coast, 1,280,000 barrels; Inland Louisiana-Arkansas, 880,000 barrels; Rocky Mountain, 1,320,000 barrels, and California, 6,750,000 barrels.

Natural Gasoline

Natural gasoline to be blended at refineries is estimated as 8 percent of the total refinery production, or 4,020,000 barrels. The yield of straight-run and cracked gasoline is estimated as 43 percent which, applied to the production of 46,200,000 barrels, gives crude runs of 107,460,000 barrels, or 3,466,000 barrels daily.

Runs to stills of foreign crude, which has been showing a steady increase, are placed at 3,600,000 barrels, or 200,000 barrels higher than the November estimate and 1,233,000 barrels above the actual in December, 1939.

Crude oil exports are estimated as 3,900,000 barrels, the same as for November, and crude oil to be used for fuel and losses is estimated as 2,600,000 barrels.

Accordingly, it was stated, the total demand for domestic crude oil in December, as indicated by these estimates, is 110,360,000 barrels, or 3,560,000 barrels daily, allocated among the several producing states as shown in the accompanying table.

California Cuts Well Below Bureau Figure

California's crude oil production quota for December will be 571,000 barrels daily, unchanged from the November quota, and contrasting with a recommended quota of the United States Bureau of Mines of 593,000 barrels daily.

To provide oil for allocation to newly completed wells, a reduction of two barrels daily will apply against the state's top wells, reducing the maximum allotment to 149 barrels daily. Studies undertaken by the Conservation Committee, state proration authority, indicated the completion of 84 new wells during November with combined initial potential capacities of 71,809 barrels daily. Of this number, 29 were expected to be classified in the maximum well group.

Control

New Compact To Be Studied December 6 in Tulsa

Governor Leon C. Phillips, chairman of the Interstate Oil Compact Commission, last week called the quarterly meeting of the commission for Friday, December 6, at Tulsa.

"We are making a special effort to secure the attendance of governors of non-member states because, at this meeting, the terms of the new compact must be agreed upon and rewritten for submission to the states and to Congress," Phillips said.

"I have appointed a committee composed of J. C. Hunter, of Texas, chairman; Hiram M. Dow, of New Mexico, and Andrew F. Schoeppel, of Kansas, to prepare and present a tentative draft of the new compact to be submitted," he added. "This action, at this meeting, becomes necessary because the compact, under its own terms, expires September 1, 1941."

Other business before the meeting will be study of a model oil and gas conservation law to be recommended to all producing states, recommendations on model rules and regulations for enforcement of state conservation laws, a report on uniform proration practices in conservation, and election of officers.

Indicate Texas Proration Order Will Be for 60 Days

The Texas Railroad Commission expects to issue its next statewide proration order on Monday, November 25. Commissioners E. O. Thompson and G. A. Sadler have indicated that they would prefer an order which would run for 60 days.

Comments of the commissioners at the statewide hearing and after, indicated that they thought the allowables should be approximately the same as consumer demand as estimated by the United States Bureau of Mines. It seemed likely that the statewide order would provide for this allowance and that thereafter necessary adjustments could be made to take care of particular cases.

The nominations filed by the producers were about 30 percent higher than demand as estimated by the bureau, but the commission indicated belief that while the nominations might be firm, probably demand for all of the oil for which nominations were received will not materialize, and that there was some duplication in the nominations, that some of the nominations were for oil which might be used for speculative purposes; also that some purchasers, in making nominations, had taken into consideration the fact that even though granted the full amount requested, there would be some deductions because of shutdowns.

Bureau of Mines Forecast of Crude Oil Demand for November

State	Forecast Dec., 1940	Forecast Nov., 1940
Texas	1,277,000	1,291,000
California	593,000	583,000
Oklahoma	422,600	413,000
Illinois	363,600	365,000
Louisiana	280,300	274,000
Kansas	188,400	186,000
New Mexico	100,600	104,000
Wyoming	74,500	75,000
Arkansas	66,100	71,000
Pennsylvania	47,900	45,100
Michigan	47,100	51,000
Montana	19,700	18,900
Indiana	15,500	14,200
Mississippi	13,900	13,800
Kentucky	13,900	12,300
New York	12,100	12,500
West Virginia	9,000	8,500
Ohio	8,000	8,000
Colorado	3,900	3,700
Nebraska	2,000	.....
	3,560,000	3,570,000

Texas Commission Criticized Severely at State Hearing

General criticism of the Texas Railroad Commission's policies, or lack of them, in fixing oil allowables was voiced at a statewide proration hearing held in Austin last week. One operator after another took the floor to offer his suggestions and solutions, and the entire hearing was overcast by a cloud of distrust in the commission, indicated by resolutions passed by Texas oil and gas associations asking for a new state regulatory body.

The principal complaint arose from the fact that some wells and fields have higher allowables than others, that there is a strong market for some types of oils, especially from particular fields, and that other types of crude and other fields go begging for a market.

During the past year charges have been made that the total state allowable has fluctuated too rapidly, and that there has been no cause for the wide fluctuations from month to month. This has been the contention of the members of many of the associations who propose a new separate oil and gas commission.

They complain likewise of the practice of increasing allowables for particular fields whenever a firm demand for the oil is shown. In addition, they complain that even after a statewide order was entered there was no reason to expect it would remain in effect very long without numerous revisions. Some of these revisions were ordered after a hearing on the particular field had been held, and in other cases, increases were granted without formality of a hearing.

Production Below Bureau Figure

Placed on the stand by commission officials, John E. Taylor, chief state oil and gas supervisor, presented evidence to show that Texas production during the first nine months of 1940 had been 0.67 percent below consumer demand for the same period as estimated by the United States Bureau of Mines. During March, April and May of the period, production had exceeded the bureau's estimates, but during the remaining six months it was below.

During this same time, the nation has produced daily 128,010 barrels above bureau estimates, on the average. This lead Taylor to the conclusion that there might be excessive production in the United States, but that it could not be charged Texas.

As the hearing closed, Commission Ernest O. Thompson presented figures showing that for the week ending November 9, storage declined 2,189,000 barrels, half of which was withdrawn from Texas storage. This left for the nation as a whole 261,631,000 barrels of storage. Thompson thought it significant that this compared almost exactly with the storage figure on June 1, 1940, which was 261,662,000 barrels.

This was offered as proof that Texas had not produced excessively during 1940, and further, that stocks had not risen as

a result of production from Texas or from other states. This left for the commission's critics the following charges: (1) that allowables had fluctuated too radically during the nine months' period; (2) allowables were inequitably distributed between fields.

The commission then turned to an examination of nominations filed by purchasers. For December, purchasers advised that they wished to buy 1,735,918 barrels a day, while the consumer-demand figure of the bureau was 1,277,000 barrels. Much of the hearing was given over to an effort to determine where the difference of 458,918 barrels might lie. Each purchaser attending the hearing was queried carefully to determine whether or not his nominations were firm, and whether he was ready, willing and able to buy and use the oil he had nominated to purchase. Not one operator failed to confirm his nominations and in some instances increases were presented.

Humble Plan

Only one plan was presented to the commission for solving its problem, and that by Humble Oil & Refining Company. Hines Baker, company attorney, presented figures to show that during 1939 nominations from Texas from the purchaser averaged 226,707 barrels daily above the actual demand. This was an excess of 16.4 percent. By November, the nominations were 427,000 barrels above demand. Obviously, if this plan is followed, about 450,000 barrels daily would have gone to storage during some months of the year.

Baker thought allowables should be fixed on a uniform basis over a long period, and that the commission should stabilize the overall allowable and then adjust allowables between fields on a more equitable basis.

To obtain this equity, he recommended that as a general plan, Gulf Coast fields should be prorated on reserves and per well with about 50 percent allocated on each factor. In fields outside the Gulf Coast, acreage would be substituted for reserves and proration would be on acreage and wells. This does not mean that distribution within the fields should be on this basis, but that in distributing between fields, allocations should follow this general program.

The plan would not fit every case, Baker explained. It appeared he intended the commission should distribute production in East Texas about like it is now, because of the high reserve and the pressure control program. Other exceptions would have to be made. It was a general program and not a detailed plan that Baker offered.

When Baker had finished with his presentation, he was cross-examined at length by Commissioners G. A. Sadler and Thompson, who apparently found little in his plan that was good. Comparing Sulphur Bluff and Sugarland, which Baker had done, was like comparing a hog with a cow, according to Thompson. Baker pointed out that Sugarland had been restricted for years, while Talco had been producing wastefully. He insisted that it was not the difference between one or two fields that needed correction but a general adjustment over the state.

Baker thought that if conditions remained as they are and oil was supplied from fields where purchasers demanded it, then selective buying would result extensively and proration generally would fall.

"If we go on," Baker said, "with selective buying, Humble will take from its own fields and the whole thing will fall."

"Do you mean Humble will wreck it because of its giant strength?" Thompson inquired.

"I mean all purchasers," Baker replied. "If the purchaser is going to take all he wants from his fields, what's the use of going out and connecting to other fields? If you let a buyer say, 'I want my oil from a particular field,' then the buyer really will dominate the market."

Gulf Oil Corporation which has sought, and continues to seek, higher production from 16 fields along its line in West Texas, was brought into the discussion. There was no doubt that the company could buy oil, and that allowables were distributed on a fairly equitable basis between the fields to which it was connected.

"Having heard the evidence, do you think Gulf should be granted that oil?" Taylor inquired.

"I do not see how you can grant Gulf the oil it wants and hold the others down," Baker replied. "If the big purchaser can do what is suggested here, we cannot have a fairly operated plan."

Baker thought that if allowables were not increased, Gulf Oil Corporation might be inconvenienced for a month or two, but if the company wanted the oil, it would be found and purchased. He did not think, however, that this was so important as was the preservation of the entire proration system. He declared that it was bound to collapse without a readjustment on some yardstick, and Humble Oil & Refining Company did not care what that yardstick was.

Sadler then read into the record a letter which Humble sent to "all from whom Humble purchases oil." Many of these letters (see page 37) went out with royalty checks sent on November 15.

Sadler Statement

After considerable additional debate, Sadler declared that, with so much argument about the duties of the commission and so many ideas being advanced as to just how these duties should be carried out, he felt that he should state in plain terms where he stood on the questions involved. He then read a statement he had prepared.

In this statement, he asserted the law authorized the commission to prevent waste, and that it had no right to consider price. "What right or reason has anyone to contend that the legislature intended that we should find or exclude some kind of market demand other than the ones the statutes define?" he asked. "The law does not speak of consumer market demand or demand for current consumption or demand at a price. It speaks only of the kind of market demand that exists when there is a purchaser ready and able to buy. It is when we get away from this simple propostition that we get into trouble.

"We have no right to fix allowables with relation of reserves, or any other formula however ingenious. I decline to consider these formulas. I do not care whether they are good or bad. I say they were not contemplated by the representatives of the people who framed our laws, and that I am not going to have anything to do with them.

"All we are authorized to do is to prevent waste. That is a very plain and simple statement. It should not be necessary to make it, but it is necessary because so many people with so many ideas are trying to complicate the subject and to involve us in a maze of figures that mean nothing to me because the law does not authorize me to use them.

"We are further authorized to apportion the allowable production upon a fair and reasonable basis among the various pools of the state. My position is that this section means that if a given pool has a market demand for a stated amount of oil, its allowable production shall not be cut down in order to enforce a market for another pool which has no or a lesser market demand.

"I do not believe that we have any right under the law or under any theory or formula from any source however high and weighty to cut the allowable of a pool below the amount of oil for which there is a market demand without waste. And I take this position regardless of reserve, wells per acre or other factors that are dragged in to justify allocations on some other basis than market demand.

"If I were willing to accept the reserve theory of allocating production, I would be calling your attention to the fact that with 52 percent of the natural reserves, Texas is producing only 36 percent of the oil drawn from these reserves. And at the same time I note that the states with the smaller reserves are producing a much larger percentage than their reserves justify.

"If anyone doesn't know from this where I stand, let me repeat that I believe this commission must be guided solely by the the letter of the law, and if that is true we have no right, by formulas, indirection or otherwise, to consider anything except the prevention of waste, and for one, I shall have no part in action which has price fixing as its purpose or affect, nor will I join in action which attempts to substitute private and hitherto untried yardsticks for the common sense application of the law."

It appeared certain that little consideration would be given the Humble Oil & Refining Company proposal by the commission.

Wants Proration Abandoned

Going to the other extreme, O. W. Killam, Laredo operator, urged that proration be abandoned entirely. He declared it was a wasteful practice and that it had cut recoveries in the Laredo district by 50 percent in some cases. Killam declared that there was general distrust of the commission, much of which he seemed to think arose from attempting enforcement of the various rules the commission has promulgated.

"Price and salesmanship," Killam said, "create the market demand for oil. There is no market unless it is profitable to the purchasers to buy. The demand for Mirando crude is there because the price is low when compared to other crudes and the derivatives from each."

Killam reached the conclusion that there was no difference between a Texas oil man and a WPA worker. The former is borrowing from future generations to live now, and the latter is discovering and developing reserves that ought to be left to the future.

"Another thing," Killam said, " we ought to put the bankers out of the oil business. Now the oil man is working for the banker, supply company and the taxer, while the Railroad Commission runs his business."

The Independent Oil Producers Equity Association, with headquarters in Austin, renewed its criticism of commission methods of fixing allowables.

Senator Clint Small, attorney for the association, charged that Texas has produced 11,500,000 barrels of the oil which has gone to storage during the past nine

months. He said that this was half the total increase for the nation.

While he thought this might not result in a critical condition because of the increase, the uncertainty which it caused was hazardous to the industry, in his opinion. The principal criticism was the high allowables in particular fields which, he said, are permitted to produce to the disadvantage of other fields.

"One purchaser," Small said, "who has been granted special favors in selective buying has depressed the others, especially those with widespread pipe line facilities who take from all fields. If the commission grants in full the requests which are filed by purchasers in particular fields, chaos will result. It may not cause waste in fields where the grant is ordered, but it may cause waste in some other field where lifting costs mount where the per-well allowance is decreased. This may result in the premature abandonment of wells in that field where operations have become so expensive.

"It is my opinion that the price received for the oil has as much to do with waste as has the gas in solution. If the proper regulation of an industry results in price changes, the courts are not interested," Small said. He declared that this contention was supported by numerous decisions of the Supreme Court.

Queried as to how he would supply the demand for West Texas oil which Gulf Oil Corporation had asked, Small said he would take all the evidence submitted, then determine how much each field could produce without waste and allocate it equitably among all the fields. Whatever allowance fell to Gulf Oil Corporation, would, in his opinion, be its fair share. He thought that the entire industry would adjust itself to such a change within 60 days.

Humble Letter

[*Continued from page 39*]

from their present connections; and they threaten the entire system of posted prices by which the producer gets the going price at the lease for his oil currently as it is produced.

"Conditions will be materially improved if the industry and the conservation authorities operate the proration program so as: (1) to keep the state's production on a stable basis within the Bureau of Mines' estimate of demand and without repeated fluctuations above and below this figure; (2) to apply some equitable yardsticks or principles for the allocation of allowables among pools, and to adhere to these principles over a period of time with a view to the establishment and maintenance of equity and of stable producing and purchasing conditions; and (3) to recognize that the demand for a given grade of crude should not be allocated to or supplied from a given field, but that all pools producing this grade of crude should share equitably in the total demand for the general grade involved.

"The producer who seeks excessive allowables from his fields and the purchaser who undertakes to secure his demand from a few selected fields with such high allowables are pursuing a shortsighted policy, destructive in the end to themselves as well as to the industry.

"This situation requires the intelligent action of all members of the industry and all conservation bodies in the several states for its correction and for the establishment of sound practices and the basis for stable conditions."

World-Wide Developments

Veracruzan Contract Tied Up By Mexican Injunction Suit

Compania Petrolera Veracruzana, S. A., subsidiary of the Japanese-controlled Compania Mexicana de Petroleo La Laguna, S.A., recently granted contract by the Ministry of National Economy to explore and exploit for petroleum 247,000 acres (100,000 hectares) in the municipalities of Misantla and Jalapa, south of the rich Poza Rica field in the state of Veracruz, has filed an injunction suit in the First District Court of Mexico City against the government's requirement that it put up 20 pesos a hectare to guarantee performance under the contract.

Shortly after the official publication of the terms of the contract in the October 14 issue of Diario Oficial, well substantiated reports were to the effect that the signing of the contract was viewed with displeasure in high official circles. The international situation, growing talk of solidarity with the United States in the matter of continental defense, as well as the fact that the contract was with a private company controlled by foreign capital, were understood to be the influencing factors in bringing about this feeling.

Thoroughly reliable sources reported that the government proposed to cancel the contract as a gesture of cooperation with the Havana conference program, but that legally justifiable reason would have to be found. Then came the announcement that the Ministry of National Economy had notified Compania Petrolera Veracruzana it would be required to post a bond to guarantee performance in the sum of 20 pesos a hectare. Fifteen days for compliance was given, the time limit to expire November 21. In the first reports the amount of the bond was cited as 3,500,000 pesos. The general expectation in oil circles was that the amount of the bond would be considered prohibitive by the company and that the government, in turn, would cancel the contract. A bond in the sum of 3,500,000 pesos, on the basis of 20 pesos a hectare, would cover a total of 175,000 hectares. The contract published October 14 specified only 100,000 hectares.

Injunction Suit Filed

On November 9, Enrique Malanche Torres, who signed the contract on behalf of the company, filed, as its legal representative, injunction proceedings against the requirement to put up performance bond. It was alleged that on September 17 the company signed contract with the Ministry of National Defense for exploitation of oil lands with an area of 74,364 hectares, the company guaranteeing its obligations under the contract with its equipment and installations. It was further set forth that the Ministry of National Economy, on October 23 (nine days after the contract was published), decided that a guarantee of 20 pesos a hectare must be put up, or a total of 1,487,292 pesos, this to be deposited in the Bank of Mexico. Relief from this requirement is asked on the grounds that only fifteen days were allowed for making the deposit, and that the contract in question does not cover national petroleum reserves.

The contract in question, as published in the government gazette, was signed September 13, 1940, on the basis of a presidential decree dated May 4, 1937, or prior to the 1938 expropriation of foreign-owned oil properties. Modesto C. Rolland, subsecretary of the Ministry of National Economy, signed the contract on behalf of the government. Compania Petrolera Veracruzana was organized in 1934 as a Mexican company. Dr. Kisso Tsuru, a Japanese, is understood to have heavy stock holdings in the company.

Mexican oil circles point out that the agreement with the Veracruzana was for exploration work over a period of five years and exploitation during a period of twenty years, being a contract with payment to the government of five percent and to the surface holders of five percent of the production, rather than a concession under the old meaning of the term.

The contract with the company was published about a month prior to publication of Mexico's new petroleum law. This law, making the petroleum industry a public utility under exclusive direction of the government, specifies that the government may require proof of financial and technical ability of any private company or contractor given a contract to carry on oil development for the government. It also specifies that concessions issued under the Petroleum Law of December, 1925, shall continue to be subject to the provisions under which they were granted.

In the event the injunction sought is denied, the company will find proposed activities over a large area near the port of Veracruz halted. An interesting angle is that the area covered by the contract includes territory that American and British companies passed up as unimportant several years ago. There have been comments in oil circles that the Mexican government's action in the Compania Petrolera Veracruzana matter may have been spurred by the feeling that granting of the contract was not particularly well advised at this time.

New Mexican Law Vests Petroleum in Government

Mexico's new petroleum law, which became a definite part of the nation's federal statutes with publication November 9, specifies that "everything relative to the petroleum industry is of exclusive federal jurisdiction."

The petroleum industry is defined as compromising "the discovery, recovery, transportation by pipe line and the refining of petroleum." Direct supervision over "all natural mixtures of hydrocarbons found in the national territory, whatever may be their physical state" is vested in the nation. This right is designated as "inalienable and imprescriptible."

The granting of exploration and exploitation concessions, as such is definitely prohibited. The government may, however, execute contracts with private persons for carrying on exploration and exploitation work for the account of the government.

The Cardenas administration's policy

of "Mexico for the Mexicans" is bluntly expressed in Article 9 of the new law, which specifies: "The contracts to which the preceding Articles refer (contracts with private persons) shall only be made with Mexicans or with companies exclusively formed of Mexicans. In no case shall stock companies be formed issuing bearer shares (that is, shares the owner of which is not specified)."

Oil circles interpret Article 9 as being, in its general effect, a death blow to the investment of foreign capital in the Mexican petroleum industry. Naturalized Mexicans or persons of other than Mexican blood born in Mexico and thus holding Mexican citizenship are not barred from obtaining contracts to explore and exploit "for the account of the federal government," but the direct investment of foreign capital as such comes under the ban. This prohibition is made doubly sure by provision against formation of stock companies issuing bearer shares. Under this regulation all stock of companies engaged in oil exploitation must show the name of the owner, thus making certain that the government will at all times be informed of the identity of stock holders. In the past, portador, or blank shares, have been of customery issue.

The government has at all times a stop lever against the application or operation of any company in a provision which accords to the government the right to require proof of "technical and financial capacity of the contractor."

In transitory article of the new law, it is set forth that "concessions issued under the Petroleum Law of December, 1925, shall continue to be subject to the legal provisions under which they were granted." This answers any question of retroactivity on that particular point.

Students of the new law point out, however, that it contains no general transitory article derogating prior laws that may be at variance with the new statue. The Petroleum Law of 1925, officially published December 29 of that year (passed under Calles), is the predecessor of the new legislation.

The new law is specifically the "regulatory law of Article 27 of the Constitution with regard to petroleum." A year or more ago, some months after the Cardenas' expropriation of foreign-held oil properties in Mexico, a constitutional amendment to prohibit the granting of concessions for petroleum exploitation was submitted to the various state legislatures. This was in keeping with a new policy enunciated by Cardenas in his expropriatory decree. Following approval by a majority of the state legislatures, the federal congress declared the addition of the amendment in Article 27 of the constitution. The addition reads as follows: "With regard to petroleum and solid, liquid and gaseous hydro-carbons, concessions shall not be issued and the reglementary law shall determine the manner in which the nation shall carry out the exploitation of these products."

The constitution, prior to the amendment cited, permitted granting of concessions by he government for oil exploitation. The act of congress adding the amendment prohibiting the granting of concessions, was signed by Cardenas December 27, 1939, but not published in the official gazette (a procedure that gives it official effect) until November 9, the same date the regulatory law, which was signed by President Cardenas December 30, 1939, was officially published.

Story of Heroism and Death Among Oil Men Unfolded in Sea Disaster

Details of a story of heroism, of death to one of the party, and finally of rescue of the remaining five, is unfolded in reports reaching the United States this week of the accident in the Gulf of Paria in which Dr. Manuel Guadalajara, petroleum inspector of the Venezuelan State of Monagas, lost his life, and James Clark, manager of Standard Oil Company of Venezuela at Caripito, and four associates drifted in life preservers for 48 hours before being found by rescuers.

Late last week the body of Dr. Guadalajara, a highly respected and liked Venezuelan official, had not been recovered, despite a search which involved planes and boats over a wide area.

Those involved in the accident included, besides Dr. Guadalajara, who was a graduate of the University of Oklahoma: James Clark, recently transferred from the management of Lago Petroleum Company at Maracaibo to the management of Standard Oil Company of Venezuela's Eastern Venezuelan operations at Caripito; L. F. Kahle, chief engineer of the company; Charles S. Potter, purchasing department; George F. Colvin, an engineer, and David C. Bowles.

Here is the detailed story of the accident and rescue:

A party consisting of Clark, Kahle, Guadalajara, Potter, Bowles and Colvin left Pedernales November 4 on the "Caripiteno" enroute to Caripito and on the way they anchored the vessel 300 feet off the north side of Soldado rock and proceeded towards the rock in a motor boat in calm weather, and started to fish. This was about 1:30 p.m.

According to the captain of the "Caripiteno," the launch was visible to them until about 4 p.m., when it went out of sight, presumably having proceeded to the south side of the rock, leaving the rock between itself and the "Caripiteno."

Darkness, which comes down early at this time of the year prevented further observation from the "Caripiteno," but Mr. Pinkerton on board the Standard launch No. 22 from Pedernales, went aboard the "Caripiteno" at around six o'clock and later on this launch left the "Caripiteno," made a sweep around the reef and then proceeded to Guiria to organize a searching party, which got to what they thought to be the approximate location around 11 p.m.

Early in the morning of the fifth two Standard aeroplanes took off and flew all over the gulf until after 11 a.m., when they landed for replenishment of their gasoline tanks. They took off again and flew during the afternoon, and the Mene Grande plane was being got ready to assist in the search. Permission was asked and immediately granted to the planes to fly over Trinidad waters and additional observers were sent up in all of these flights.

Four boats were dispatched from Guiria plus the "Carmen" from Caripito and in all 10 vessels were used this day plus the two planes.

The search revealed nothing that day. However, it was continued with the aid of "curiaras," which were able to navigate alongside the mangrove swamps, and a lookout was maintained along those shores where setting currents are known to spend themselves.

On the morning of November 6, shortly before 9 o'clock a government launch from the Aduana at Guiria, picked up a piece of wood floating on the surface and which was recognized by a Standard employe on board as belonging to the missing motor boat. This he was able to recognize by the color and nature of the paint.

A calculation was made as to the direction from which this piece of wood had floated and a course was set in that direction with the result that the five survivors were picked up at 9 a.m. at a point 20 miles south of Guiria. They were immediately taken on board and the launch proceeded to Guiria, where they were disembarked and hospitalized.

According to subsequent statements of the survivors, the following is what happened on the motor boat:

At 3:30 p.m. on November 4, while they were fishing off the Soldado rock from the launch, the boat struck a submerged reef and started sinking by the stern, her bow remaining out of the water and resting on the reef.

She remained thus for about half an hour, when the rising tide floated her off and she started sinking further by the stern, leaving only about two feet of her bow out of the water.

Each member of the party in the interval had put on his life jacket and had made a raft of the seat cushions, which they had tied together with ropes in a curtain around the exposed part of the boat. The partly submerged boat with the survivors clinging to their improvised raft then started to drift and they were within sight of the "Caripiteno" and of the Standard launch No. 22 and endeavored to signal these craft, but to no avail, neither their signals nor hails being seen or heard.

With nightfall they resigned themselves to the fact that nothing further could be done until daylight, when they felt sure they would be picked up by one of the searching boats and they cheered themselves by singing part of the time.

In the morning of the fifth and at various intervals during the day they spotted the planes and other floating craft of the searching party but were not themselves seen by any of the searchers although at times they seemed to be making right for them only to turn away when almost within hailing distance.

Here it has to be remembered that the party was in the water with life jackets on but immersed up to their chins with only their heads showing and the boat had by this time become almost entirely immersed, so that they would be very difficult to spot. The cushions merely aided them to rest their hands on them.

At nightfall the party was beginning to feel the strain and the prospect of a second night in the water was beginning to tell on them. The fact that the waters contain fierce fish did not help.

Shortly before 10 p.m. the "Caripiteno" passed them at what they esti-

mated to be from 100 to 150 yards away, but which was probably much further, and the fact that they did not see them had naturally a very demoralizing effect.

Dr. Guadalajara, whose physical condition was not as strong as the others in the party was particularly depressed and weak, and had twice floated away from the party and had undone his life jacket. Mr. Kahle on two occasions had to swim after him and bring him back to the raft of cushions and everything was done to make him comfortable. In fact, throughout the whole ordeal special attention to Dr. Guadalajara was given by all members of the party, as they realized he was less fitted to survive the ordeal than any of them.

At about 10 p.m. he let himself drift away again and Mr. Kahle again went after him although he himself was naturally in an exhausted state. He got to within a few yards of him when Dr. Guadalajara slipped out of his life jacket and sank out of sight. Prior to this he had been hysterical.

Several of the remaining members of the party had their moments of delirium and as a precaution against their slipping away they had tied their life jackets to the cushions.

And so they hung on until 9 o'clock on the morning of November 6, when as above noted, the government launch from Guiria picked them up and took them into that port.

In the interval Messrs. Floyd and Reid from the Standard's Caracas office proceeded to Caripito in order to be of any assistance possible. They were accompanied by Dr. Herrera Figueredo of the Ministry of Fomento, who had been sent by the Minister to assist where possible.

The relief felt by everyone in Caripito over the saving of five members of the party was only overshadowed by the loss of Dr. Guadalajara, and plans were immediately made to institute a search for his body, beginning at the point where the survivors had been picked up, it being felt that the body when it did come to the surface would probably be in the neighborhood of the boat and wreckage.

A boat was out all the afternoon of the sixth in case it were possible to locate the body although this possibility was seriously discounted, as it is generally known that the body of a drowned person does not come to the surface for a period of 24 hours.

At 3 a.m. on the morning of the seventh the organized search commenced and in these operations eight launches were used and on the tanker Esso Caracas special observers equipped with powerful glasses cooperated; this in addition to "curiaras" and walking parties and of course the plane. All ships in the vicinity were also instructed and over 100 people were engaged in the search, a system of signals having previously been arranged.

These operations have been continued now for six days but have so far not met with any success.

In the rescue and subsequent search, every possible assistance was given Standard employes by the government departments concerned, i.e., Fomento, Hacienda and Marine. The U. S. military attache at Caracas also sent his plane to Caripito and put it at the disposal of the searchers. The Administrator of Aduana at Guiria, with his staff, cooperated to the fullest extent possible, and it was one of his launches, occupied by four men including one Standard employe, that picked up the survivors.

The survivors of the party arrived back at Caripito from Guiria on the night of November 7.

Messrs. Clark, Kahle and Bowles were in fair shape, cheerful but weak, especially in the legs and were suffering from sunburn. Clark and Kahle went to their homes and Bowles went to the hospital for the night as he was complaining of stomach pains through having swallowed a quantity of salt water.

Messrs. Colvin and Potter were in worse shape than the others of the party, being very weak and suffering from sunburn. They were taken ashore at Caripito on stretchers and immediately placed in hospital and their condition although not serious will necessitate their remaining there for a further week or so. Mr. Clark and Mr. Kahle also had slight relapses and over the week-end had to go to hospital for their sunburn condition and to generally work off the reaction.

An official report on the accident says: "While all the survivors of the party conducted themselves with a serenity and courage that was very commendable, special mention must be made of Mr. Lawrence Kahle, who apparently did not spare himself for one moment looking after those other members of the party who were not in such good shape. His strong swimming and general looking after of the party undoubtedly contributed in no small measure to the ultimate rescue of the remainder of the party."

New Barco Discovery Makes 100 Barrels Daily

Another producing field has been discovered on the Barco Concession of Colombian Petroleum Company in Colombia, through the completion of the company's Tres Bocas 1. The well is reported to be capable of producing about 100 barrels per day from 10 feet of Barco sand (in the Eocene) at 2900-3910 feet. Drilled to a depth around 5000 feet Tres Bocas 1 failed to develop anything of interest at the lower depth and was plugged back to the 10 feet of sand. It is thought that the well may have cut a fault. A second well will be drilled at a point about 1500 feet east of No. 1.

Colombian Petroleum Company's Socuavo 1, also on the Barco, is drilling around 3400 feet. This well has a heavier rig than is ordinarily used in this area and it is planned to drill to the Cretaceous.

Peru Makes Three Petroleum Shipments to Japan

Peru has sent three shipments of petroleum products thus far in 1940 to Japan, according to Julian Greenup, of Lima.

These were as follows: 101,311 barrels of crude shipped February 3 by Compania Petrolera Lobitos, controlled by Milne & Company, of England; 13,175 barrels of kerosene shipped in March by International Petroleum Company, and 19,000 barrels of crude shipped on a Panamanian tanker September 11.

Greenup states the producers of Peru have lost most of their European markets because of the blockade, and are naturally anxious to meet every demand which does not involve them or the country in international difficulties.

Cardenas Asks Appropriation For Equipment Repairs

Mexico's congress this week is considering a request of President Cardenas for outlays totaling 60,000,000 pesos for repairs and replacements in oil-field equipment made necessary "because of the lamentable condition of the properties at the time of expropriation."

The president's request came in an address to congress in which he proposed revision of the country's petroleum laws with the objective of making it possible to settle financially with the companies whose properties were expropriated. Cardenas is described by intimates as most anxious to work out some program of compensation for the oil companies before leaving office November 30.

Meanwhile, the Mexican petroleum industry continues to operate at a deficit as negotiations between the government and oil employes on reorganization plans are in progress. The government-sponsored plans call for salary cuts and personnel reductions.

Home Oil Defers Canadian Drilling Until Spring

Home Oil Company does not intend drilling any new wells in Turner Valley in the near future, J. R. Lowery, managing director, stated recently.

"Because we were clearing possible sites for new wells while we had excavation equipment on hand, and were anxious to do such work before the freeze-up, stories got around that we planned a drilling program involving three, or possibly four, more wells," said Lowery.

"We haven't even taken out permits for any new wells, and don't intend to do further drilling until the three wells we are sinking are completed."

Lowery indicated it may be next spring before any new wells are drilled.

The company has three wells producing and three drilling, No. 5 is down 7611 feet, 66 feet in the lime, No. 1 is nearing the lime contact at 7127 feet, and No. 6 is drilling at 6669 feet.

Canada May Use Substitutes for Gasoline

To save foreign exchange, the Forest Production Laboratory of the Department of Mines and Resources at Ottawa, has suggested that Canadians use substitutes for gasoline. Imports of crude oil, fuel oil and gasoline in 1939 amounted to more than $48,000,000, and with foreign exchange being required today for purchases in the United United States of war equipment, government forestry experts point to producer gas from forest products.

Producer gas, it is pointed out, costs the consumer much less than gasoline. On the basis of gasoline at 22 cents per gallon, charcoal at $20 per ton, and air-dry hardwood at $7 per cord, the cost of gasoline is about double the cost of producer gas from charcoal, and nearly five times the cost of producer gas from wood. In addition to actual fuel cost is the cost of bulky special equipment required, which amounts to $350 or more per vehicle. More space is required to carry the fuel and there is some reduction in engine power. The report stressed development of gas from charcoal in England and Australia.

Crude Output Moderate But Refinery Runs Too Large

Operations of the industry were comparatively moderate in the week ended November 16, latest statistics indicated. Crude production continued close to market demand, but refinery runs were stepped up and exceeded economic proportions. Gasoline production increased a little, and stocks of that product began their fall-winter climb, after having dipped only slightly below 80,000,000 barrels the week before. Stocks of light fuel oils continued to decrease for the third consecutive week, after having risen to an all-time peak of 48,893,000 barrels in the week ended October 26; seasonally increasing demand for that product having arrived. Heavy fuel oils also continued to come out of storage, as consumption by industrial buyers remained large.

United States crude oil production averaged 3,576,550 barrels daily in the week ended November 16, the American Petroleum Institute reported. That was 7650 barrels less than in the previous week and was within that same amount of market demand, as estimated by the Bureau of Mines. The output also was about the same as in the corresponding week last year.

Crude runs to stills were increased 30,000 barrels to 3,540,000 daily, and were materially higher than economically desirable. The runs were 1.5 percent larger than in the like week last year, when an average of 3,497,000 barrels was recorded.

Production of gasoline amounted to 11,666,000 barrels in the November 16 week, and exceeded by 164,000 barrels the plant output in the preceding 7 days.

Gasoline Stocks Increase

Finished and unfinished gasoline stocks in the United States increased 216,000 barrels to 80,063,000, as consumption slowed down with colder weather. At the corresponding time last fall, the industry had on hand 75,170,000 barrels of gasoline, or about 5,000,000 barrels less than now. Thus the industry is worse off now than a year ago, with regard to gasoline in storage.

Stocks of light fuel oils decreased 300,000 barrels, to 48,108,000 barrels on November 16, but were about 9,000,000 barrels larger than at the corresponding time last year. That extra quantity in storage is being counted upon to prevent any scarcity of supplies in the coming winter, even if the weather is severe, causing large demand for heating purposes.

Heavy fuel oil stocks came down further about 500,000 barrels to 107,151,000 barrels, as demand continued large. That quantity was 5,000,000 barrels smaller than the amount on hand a year previously.

Crude oil stocks have been fluctuating considerably from week to week, because of irregularity in production, particularly in Texas, and there was a withdrawal of over 2,000,000 barrels in the week ended November 9, the Bureau of Mines reported. At 261,631,000 barrels, the stocks were at the end of the week nearly 14 percent higher than a year previously, when the inventory totaled only 230,037,000 barrels, having been at that time close to the lowest level since 1922.

Production Rises Sharply As Texas Output Jumps

Because of the irregular distribution of shutdown days in Texas, production of crude oil in the United States increased by the large amount of 201,950 barrels in the week ended November 23, to an average of 3,774,775 barrels daily.

In the previous week, output had conformed almost exactly with market demand as estimated for November by the Bureau of Mines, and the new rate was 204,775 barrels above the indicated demand.

Whereas Texas fields had been shut down 2 days the previous week, they were on production every day in the week of November 23 except Sunday, November 17. Consequently, the daily average for the state jumped to 1,510,900 barrels from 1,295,800.

Texas is due to compensate for the temporary large output, however, through three days of shutdowns in the week ending November 30, as closings are scheduled for November 24, 28, and 30. In that week, Texas production should average only about 1,200,000 barrels daily.

The only other noteworthy increases in production in the November 23 week were those of approximately 4500 barrels in Oklahoma and 3000 in Louisiana.

Fuel Oils and Lubricants Strong; Gasoline Weak

Mixed colors are embodied in the current market picture, from fairly bright to somber. Both light and heavy fuel oils continue in strong demand and have advanced in price in various districts of the North and Middle West, while kerosene has reacted similarly. Lubricants remain firm, and also have been marked up by some refiners.

Gasoline, in contrast, is freely available at the established low prices, and no improvement is in sight, particularly as stocks have begun the normal fall-winter increase.

Markets for crude oil are affected directly by the conditions in the refined oil markets. Crudes suited to manufacture of fuel oils and lubricants are in good demand, but those which are primarily gasoline-crudes are not.

At the Texas Railroad Commission hearing November 18, no purchasing company lowered nominations for crude in December, despite the United States Bureau of Mines estimate of a 14,000-barrel decline in demand. The commission subsequently was considering the problem of determining proper allowables, and indicated that a 60- or 90-day order would be issued around November 25. Pending the promulgation of that order, the outlook in Texas and the Mid-Continent was uncertain.

The sharp rise in domestic tanker rates has continued, and prices have al-

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[3]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,373,000	47,986,000	108,450,000
October 5	3,488,800	3,555,000	263,551,000	82,256,000	48,187,000	107,964,000
October 12	3,641,550	3,555,000	261,511,000	81,927,000	48,743,000	108,449,000
October 19	3,667,550	3,525,000	262,098,000	81,656,000	48,841,000	108,141,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[4]48,893,000	108,475,000
November 2	3,479,950	3,535,000	263,820,000	80,774,000	48,615,000	108,199,000
November 9	3,584,200	3,510,000	261,631,000	79,847,000	48,408,000	107,687,000
November 16, 1940	3,576,550	3,540,000	.....	80,063,000	48,108,000	107,151,000
November 16, 1939	3,592,000	3,497,000	[8]230,037,000	75,170,000	38,917,000	112,054,000
Change in past year	—0.4%	+1.5%	+13.7%	+6.5%	+26.6%	—4.4%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, November 2, 1939. [5] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [6] Lowest for year. [7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California. [8] November, 1939, daily average.

Wholesale Prices of Refined Products

	Range late Last week (Cents a gal.)		Changes from week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
Mid-Western Tank Car:				
60 Octane and under	3¾	4¼	...	...
63-66 Octane	4⅛	4½	...	...
72-74 Octane	4½	5	...	...
New York Harbor:				
68-70 Octane	5	5½	...	...
72-74 Octane	5	6½	...	...
Gulf Coast:				
60 Octane unleaded	3⅝	4½	...	...
65 Octane unleaded	3⅝	4⅝	...	...
72-74 Octane leaded	3¾	4⅝	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2¼	2	—½	—¾
F.O.B. Breckenridge, Tex. 2		2	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅞	4	...	...
42-44 water white	4	4⅛	...	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4⅛	...	...
42-44 water white	4	4⅜	...	...
New York Harbor	5¼	5½	...	...
RANGE OIL				
At Oklahoma Refineries	3½	3¾	...	...
In Mid-Western Market, Group 3, basis	3⅝	3⅝	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3⅜	3½	...	...
No. 3	3¼	3⅜	...	...
Mid-Western Tank Car:				
No. 1 white	3½	3¾	...	...
No. 3	3⅛	3⅜	...	...
New York Harbor:				
No. 1	5¼	5½	...	...
No. 3	4½	4½	...	...

	Range late Last week (Per Bbl.)		Changes from week Before	
HEAVY FUEL OILS				
Oklahoma Refineries:				
No. 6	$0.55	$0.55	...	...
Mid-Western Tank Car:				
No. 5	.75	.75	...	...
No. 6	.50	.50	...	...
New York Harbor:				
No. 5	1.35	1.55	...	...
No. 6	1.15	1.25	...	...
BUNKER C FUEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$ .80	$ .90	...	...
New York Harbor	1.15	1.25	...	...
DIESEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$1.50	$1.70	...	...
New York Harbor	1.85	1.85	...	...
Los Angeles Basin, 27 gravity	1.15	1.35	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	13	15½	...	...
Neutral oil, pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	8	10¼	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	12	14	...	+1
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	19	19	...	...

most reached the highs of last January. Clean boats at the middle of last week had advanced to 57 cents a barrel for gasoline, from the Gulf Coast to North Atlantic points, 61 cents for kerosene, and 65 cents for No. 2 fuel oil. At the peak of the heating oil consumption season last winter, rates as high as 73 cents a barrel were paid for moving No. 2 fuel oil. Dirty boats were last chartered at 40 cents a barrel for 30-gravity or lighter crude and 45½ cents for 10-20-gravity fuel oil.

The continued advance of tanker rates has been at least partially responsible for further increases in prices of fuel oils and kerosene on the Atlantic seaboard.

Standard Oil Company of New Jersey effective November 22 increased its tank car prices for kerosene and No. 2 and No. 3 fuel oils ¼ cent a gallon at Baltimore, Norfolk, Wilmington, and Charleston. At the same time the company advanced its tank car and barge prices for kerosene at New York by 2/10 cent a gallon.

In the Middle West, burning oils were in strong demand, although prices were generally unchanged. At Mid-Continent refineries, shipments were heavy, and higher prices were in prospect.

At New York harbor, No. 5 fuel oil was marked up 10 cents a barrel by some suppliers, quotations having been advanced $1.45 to $1.55 a barrel. No. 6 fuel oil was raised 5 cents a barrel, meanwhile, by several refiners in the Oklahoma-Kansas region.

Both light and heavy fuel oils were in good demand in Michigan, with supplies limited.

Refined gasoline prices were generally unchanged last week in the refining and marketing areas, but natural gasoline further weakened, prices having declined ½ cent a gallon, to 2¼ cents in Oklahoma and Kansas and 2 cents f.o.b. Breckenridge, Texas.

United States Crude Oil Production Up Sharply

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable (Barrels Daily in Nov.)	BARRELS DAILY FOR WEEK ENDED Nov. 16	Nov. 23
TEXAS—				
Texas Panhandle	.....	.....	61,800	74,100
North Texas	.....	.....	110,400	118,800
West Central Texas	.....	.....	30,500	32,500
West Texas	.....	.....	214,700	250,900
East Central Texas	.....	.....	75,100	83,800
East Texas Field	.....	.....	374,600	446,500
South Texas	.....	.....	194,900	230,600
Texas Gulf Coast	.....	.....	233,800	273,700
Total Texas	1,291,000	1,324,000*	1,295,800	1,510,900
CALIFORNIA—				
Long Beach	.....	.....	42,900	43,000
Midway-Sunset	.....	.....	55,000	43,700*
Kettleman Hills	.....	.....	40,500	39,500
Wilmington	.....	.....	80,400	81,900
Others	.....	.....	402,600	398,500
Total California	583,000	571,000†	621,400	606,700
OKLAHOMA—				
Oklahoma City	.....	.....	97,150	96,550
Seminole Area	.....	.....	99,480	101,250
Others	.....	.....	199,895	203,125
Total Oklahoma	413,000	390,000	396,525	400,925
ILLINOIS—				
Salem	.....	.....	135,600	128,500
Louden	.....	.....	71,200	69,500
Centralia	.....	.....	17,800	16,250
Other New Pools	.....	.....	108,200	115,800
Old Pools	.....	.....	10,300	11,600
Total Illinois	385,000	.....	343,100	341,650

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Nov.)	State Allowable (Barrels Daily in Nov.)	BARRELS DAILY FOR WEEK ENDED Nov. 16	Nov. 23
LOUISIANA—				
North Louisiana	.....	.....	66,800	66,600
South Louisiana	.....	.....	215,500	215,500
Total Louisiana	274,000	279,973	282,300	282,100
KANSAS	186,000	190,000	192,200	190,850
NEW MEXICO	104,000	104,000	101,500	101,200
EASTERN STATES—				
Pennsylvania Grade	.....	.....	69,200	67,100
Others, Eastern	.....	.....	20,200	20,100
Total Eastern States	86,400	.....	89,400	87,200
MOUNTAIN STATES				
Wyoming	75,000	.....	73,800	73,200
Montana	18,900	.....	18,100	18,100
Colorado	3,700	.....	3,500	3,400
Total Mountain States	97,600	.....	95,400	95,000
MICHIGAN	51,000	48,000§	47,600	47,500
ARKANSAS	71,000	69,508	69,500	69,500
INDIANA	14,200	.....	19,800	19,800
MISSISSIPPI	13,800	.....	16,100	15,600
NEBRASKA	.....	.....	2,200	2,850
‡Total 8 Prorated States	2,973,000	2,976,481	3,006,825	3,212,675
Total United States	3,570,000	.....	3,572,825	3,774,775

* Net basic daily allowable in November; Texas fields were ordered shut down November 9, 10, 16, 17, 24, 28 and 30.
† Recommendation of Conservation Committee of California Oil Producers.
§ Estimate of actual production that will occur under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

Illinois

Long-Awaited Trenton Test Starts in Salem Field

The week was highlighted by the start of a Trenton-lime test in the prolific Lake Centralia-Salem pool, Marion County, completion of a pool opener in Effingham County, and near completion of another pool opener or field extension in Jasper County.

Paul Rossi started deepening Brooks 8, SW NE SW 29-2n-2e, Lake Centralia-Salem field, from the Devonian at 3432 feet to the Trenton, with cable tools, for the first test of the Trenton in the field, already productive in five horizons. Contractor is Snyder & Gwin. The test is one of the most significant developments in Illinois in many months as operators have long contended that the Trenton had an excellent chance to produce in the field. It was on Rossi's Brooks lease that the field's first 8000-barrel Devonian well was drilled to usher in an era of huge Devonian producers in Section 29 and nearby areas.

The Texas Company drilled one test below 4200 feet in the southern part of the field, Tate 21, Section 5-1n-2e, but the well was plugged back to the Devonian without exploring the Trenton. Average daily production of the pool is now 130,000 barrels, but late last spring it averaged 290,000 barrels daily for a brief time.

The Effingham County pool-opener was Kilpatrick & Hartshorn's Mason Community 1, SE SE NW 22-6n-5e, at the edge of the village of Mason, which initialed 280 barrels in 24 hours on pump from McClosky lime at 2489-96 feet, without an acid treatment. At least six locations have been staked in the area, several in the village itself. The town council has adopted an ordinance requiring a $25 permit fee for each well drilled, in addition to posting of a $5000 bond. Kilpatrick & Hartshorn hold the majority of the leases in the village, while The Carter Oil Company and Kingwood Oil Company have considerable acreage near the discovery.

In Jasper County, Buerkle-Schieck's Kermickle 1, C S½ NE NE 5-5n-10e, 1½ miles northwest of the West Liberty field and 1½ miles southwest of the Boos field, flowed 56 barrels in 30 minutes from McClosky at 2770-73 and 2799-97 feet as its initial test through tubing began. It was flowing natural, bottomed at 2808 feet. Before tubing was run, the well began flowing, but was killed with water. A pipe line has been laid from the well by Central Pipeline Company to a loading rack at Boos. Many observers regard the test as a possible link between the Boos and West Liberty pools, while others contend it opens a separate field.

Fayette Wildcat Has Show

In southern Fayette County, Kingwood Oil Company's Aukamp 1, C SW SE 30-5n-3e, was drilling at 2250 feet, near McClosky depth, after finding a show of oil in the Benoist at 1900-14 feet. A drill-stem test in the sand formation showed some oil and water. The site is three miles north of the company's recently abandoned wildcat in northern Marion County, Sam Lowe 1.

In the Sandoval field, Marion County, B. E. Martin's Robinson 1, Section 4-2n-1e, was drilling at 4500 feet. It is being deepened into the Trenton from a previous bottom of 4397 feet. The well tested Trenton shows at 4270 and 4367 feet, but neither produced commercially. Operators decided to deepen 200 feet from 4397 feet. A Marion County wildcat, Clevetex Oil Company's Squibb 1, C W½ SE SE 29-3n-3e, Carter Oil Company farmout, was drilling at 2400 feet in the Ste. Genevieve, but has found no shows to date. It is the only current wildcat in the county.

A pump test was being made at a Trenton test in the Centralia field, Clinton County, Allen Borton's Storer 1, NE 13-1n-1w, which produced 4 barrels an hour during pumping tests on a spudder from 4058 feet. The test has been both shot and acidized, and is the second Trenton well in the field. The first Trenton producer, Ames-Hicks' Brown 1, is a mile northeast of Storer 1, and was completed as a 100-barrel well.

The Carter Oil Company's Gallatin County pool-opener, York 1, SE SE SW 33-7s-9e, was still not a completion, and was being swabbed to diminish water. In its best 24-hour test, it swabbed 222 barrels of fluid of which 6 percent was water, from Palestine at 1704-32 feet. Nearby, George Cameron has taken over a Kingwood Oil Company abandonment, Robinson 1, NW NW NE 4-8s-8e, which was plugged six months ago in the St. Louis. Cameron was drilling out cement to test formations in which The Carter Oil Company found shows at York 1, principally a sand horizon at 1310 feet and the Palestine.

An interesting wildcat in the western part of the state, Floyd Alspach's Smith 1, SW SE 31-3s-6w, St. Clair County, just across the Randolph County line, was at 1500 feet, looking for Devonian lime. The Glen Dean was topped at 230 feet, and in the upper Cypress at 438 feet a gas showing estimated at 100,000 feet a day was found. The Cypress at 455 feet carried sufficient saturation for a 5- or 6-barrel well, and a show was found in the Bethel at 539 feet. Ste. Genevieve was topped at 715 feet, St. Louis at 790 feet, Salem at 985 feet and Warsaw at 1220 feet.

Perry Wildcat Testing

G. H. Blankenship's E. F. Malinsky 1, Perry County wildcat in the NW NW NE 24-4s-2w, near Tamaroa, was being tested in the Cypress at 1120-30 feet, but only a very small amount of oil was recovered following shots of 10 and 20 quarts. North of Malinsky 1, 2½ miles, Thompson Drilling Company probably will abandon Katie Prusacki 1, SE NW NE 13-4s-2w, after unsuccessfully testing Benoist sand at 1293 feet. Total depth is 1303 feet.

Kingwood Oil Company's east outpost to Hamilton County's Dale field, Prince 1, NW SW NW 31-5s-7e, was swabbing 2 barrels of oil an hour following perforations opposite a McClosky show. Casing was set at 3240 feet, and bottom was 3256 feet. The company's wildcat in the northern part of the county, Williams 1, C S½ SE NE 3-4s-6e, pumped 57 barrels of oil and 200 barrels of water in 24 hours from McClosky at 3461-66 feet.

Indiana

Vincennes Area Wildcat Sets Casing for Test

W. C. McBride's John M. Brevot 1, C S½ NE NW 1-2n-11w, four-mile north extension attempt to the new McClosky pool south of Vincennes, set casing at 1820 feet to test saturation in the Rosiclaire at 1820-29 feet, and in the McClosky at 1866-75 feet. McClosky previously was reported dry. Hole was bottomed at 1973 feet. Plug will be drilled with cable tools.

Two new tests set surface casing: Bell Brothers' Maurice Stangle 1, NW NW NE 23-2n-11w, west of W. C. McBride's Metropolitan 2, now cleaning out after acidizing McClosky, and Lewis Production Company and Loma Oil Company's Ed Sannaman 1, a location south of Metropolitan 2.

Abandoned was a Gibson County wildcat, 7 miles west of Princeton, Lewis Production Company's Effa K. Brady 1, NW NW SW 14-2s-12w. Hole was bottomed at 2408 feet, through the McClosky. Slight non-commercial saturation in the Benoist was the only show reported.

Fishing for lost drill pipe twisted off at 2680 feet was another Gibson County wildcat, A. W. Cherry and Barron Kidd's Garrett-Hall 1, NW NW SW 31-2s-12w, eight miles southwest of Owensville.

A mile southeast of Owensville, Gibson County, Mohawk Drilling Company and Major Oil Company's John W. Harmon 1, NE SE SW 17-3s-11w, Carter Oil Company farm-out, ran cement squeeze job to shut off water, and was to perforate casing at 2727 feet.

In Warrick County, just north of Yankeetown, Yankeetown Development Company's Wilson Taylor 1, SW SW NW 10-7s-8w, was underreaming to set casing at 1450 feet and deepen to the McClosky. The Barlow tested water.

Just northeast of Griffin, Ed S. Holmans' John G. Oeth 1, NE SE NE 6-4s-13w, Posey County wildcat bottomed at 2910 feet, set casing, rumored to be on a Cypress sand show at about 2500 feet.

In eastern White County, Illinois, a mile west of South Griffin field production, Patton-Carey et al's Reeves Heirs 1, NW NW SW 28-3s-14w, set casing at 2598 feet to test Cypress or Weiler sand at 2596-2617 feet. This test, about 1½ miles north of Calvin field production, was being closely watched as another prospective link connecting the Griffin and Calvin fields along a northeast-southwest trend.

Oklahoma

Caddo Wildcat Provides Viola-Lime Gas Pool

Western Oklahoma registered an important discovery as The Texas Company completed Smith 1, C NE NW 2-5n-12w, wildcat 11 miles west of Cement pool, Caddo County, for a 3,000,000-foot gasser. Pay horizon is Viola lime, topped at 2543 feet. Located between the depositional areas of the Anadarko and Ardmore Basins and largely influenced geologically by the upthrust of Washita-Amarillo Mountains, this strike adds another chapter to deep development in this complicated section. Outstanding correlation of this well is revealed by comparison with Sinclair Prairie Oil Company's German 1, SW NW NW 1-6n-13w, 8 miles northwest, where there is a subsea difference of 5400 feet on top of Viola lime. Principal shows encountered in the German test revealed dead oil, while the Smith well logged live oil and gas shows.

The Texas Company has assembled in Caddo County blocks in excess of 30,000 acres. Significance of the discovery is revealed in log record which discloses a Viola lime section 1170 feet thick. The thickening prompted The Texas Company to suspend drilling at 4396 feet in Bromide section. Mountain geology of this nature must be correlated with complex folding and faults of every type.

Hunton lime in Coyle pool, Payne County, may double the reserve status of the pool. Magnolia Petroleum Company's Cain 4, C E½ NE SW 12-17n-1e, an old Wilcox-sand producer at 4906 feet, plugged back to 4633 feet and perforated casing in Hunton lime at 4552-84 feet. Through a 1/32-inch tubing choke, the well flowed 400 barrels per day. Mid-Continent Petroleum Corporation's Johnson 3, C W½ SE SE 2-17n-1e, perforated with 10 shots in Hunton lime at 4723-26 feet and in 24 hours pumped 264 barrels of oil and 1500 barrels of water. Water was decreasing. Amerada Petroleum Corporation's Fruin 1, C SE NW 12-17n-1e, was testing.

Two shallow gas pools were opened in McIntosh and Wagoner Counties. McNutt & Young et al's American Life 1, SEc SW 1-12n-16e, a mile north of spotted gas production on a northeast-southwest trend south of Council Hill pool, was completed for 1,900,000 feet from Booch sand at 1473-85 feet. In Wagoner County, Claude Jordan et al's Meriweather 1, NEc 16-18n-17e, a mile northwest of McCracken oil and gas area, topped Liner sand at 887 feet and carried hole to 903 feet in sand. It gauged 1,200,000 feet per day.

Mason & Stuart et al's Crane 1, wildcat in SW NE SE 7-12n-5e, 3 miles west of Wilzetta pool, Lincoln County, topped Lower Skinner sand at 4220 feet and penetrated to 4242 feet. Operators cemented 5½-inch casing at 4219 feet, and shot sand pay with 30 quarts at 4229-42 feet. On a 24-hour test, it pumped 81 barrels of oil.

In Cleveland-Osage district, C. C. Cummings et al opened a new Layton-sand pool at Peary 2, SW NE NW 31-22n-9e, which swabbed 20 barrels of 38-gravity oil in 24 hours. Pay was cut at 1334-55 feet, and a small shot is expected to increase the oil.

The Pure Oil Company brought in the eleventh producer in Cumberland pool, Marshall and Bryan Counties, at Little (106) 1, SWc 27-5s-7e, on the Bryan County side. Drilled to 5080 feet in Bromide sand, it flowed and swabbed 132 barrels in 9 hours, and later flowed 90 barrels in 6 hours through a 1-inch tubing choke. Connections and separator were in place for a 24-hour run. Park College 1, SWc SE 27-5s-7e, ½-mile east of production, was rigging up pumping unit as plugback depth of 5118 feet. It is estimated at 75 barrels, smallest in the pool.

Two large gas wells were completed in Cement pool, Caddo County. Magnolia Petroleum Company's Hedlund 7, SE NE NE 11-5n-9w, tested 57,000,000 feet from sand at 5038-80 feet, Palmer Oil Corporation's Sterba 3, NWc SW 35-6n-10w, was completed for 50,000,000 feet from wade sand topped at 4340 feet and drilled to 5267 feet. Pay section was perforated at 5070-5120 feet.

Gulf Oil Corporation plugged back a deep Oolitic-lime producer in the Fox pool, Carter County, for a good Hunton-lime producer. Lester 7, C NW NW 35-2s-3w, originally drilled to 8142 feet, plugged back to 5363 feet and perforated basal Hunton lime, topped at 4861 feet. After acidizing with 20,000 gallons, it flowed 253 barrels in 12 hours through casing and tubing on completion test.

Portable Drilling Company completed the second producer in Perkins pool, Lincoln County, at Kent 1-A, NEc SE 23-17n-2e, pumping 40 barrels of oil and 350 barrels of water per day. Hunton lime was logged at 4489-91 feet.

J. G. Catlett et al's James 1, NWc NE 19-5n-4e, 3 miles east of Byars pool and north of small production west of Beebe pool, Pontotoc County, was plugged at 2920 feet in dry Wilcox sand.

Kansas

McPherson Wildcat Pumps 495 Barrels; Bird Extended

F. S. Williams and L. Morine completed Henne 1, SWc NE 21-17-1w, wildcat 2 miles southeast of Roxbury pool, McPherson County, for a pumping potential of 495 barrels daily. Mississippi lime was encountered at 2648 feet, with a show of oil at 2652-55 feet, and pay at 2658-61 feet was drilled to fill an 8-inch casing string 900 feet with oil in 10 hours. In a 24-hour fill-up test, hole stood with 1700 feet of oil, and when bit penetrated to 2661½ feet, oil rose 2450 feet. When treated with 2000 gallons of acid, it pumped 165 barrels of oil in 8 hours.

E. R. Rabon et al extended Basal-sand production in the Bird oil pool (Otis gas area) ⅞ mile southwest at Anderson 1, C N½ NE NW 32-18-15w, Barton County. Pay was logged at 3480-3514 feet, with plug set at 3509 feet. After applying a 30-quart shot, the semi-wildcat was completed for 5,328,000 feet per day.

R. W. Shields et al's Paxson 1, NEc 11-8-24w, second oil discovery for Graham County, west of Hill City and 23 miles northwest of Morel (Arbuckle) pool, was taking flow test from the Marmaton lime at 3750-56 feet after acidizing through tubing with 2000 gallons. Pay was previously believed to be Lansing lime.

C. L. Carlock's strike in Rice County has been designated as the Karber pool. The operator's Karber 1, C W½ NW NW 7-19-10w, 1¼ miles east of Rick pool, was completed for 280 barrels of 34-gravity oil per day on the pump. Arbuckle lime at 3343-50 feet was acidized with 3000 gallons.

Since offset production has been developed between Stoltenberg, Stoltenberg Southeast and Stratman, together with completion of Magnolia Petroleum Company's Schroeder 1, C NL NW NE 33-16-10w, as an Arbuckle-lime producer with a potential of 103 barrels, the three producing areas have been joined and designated as Stoltenberg pool, Ellsworth County. Production in the W½ 17 and E½ 18-16-10w, has been separated from the Stoltenberg pool and labeled Stoltenberg West. Stoltenberg Northwest includes production in W½ SW 5, SE¼ 6, NE¼ 7, and W½ NW¼ 8-16-10w, and Stoltenberg Southwest embraces production in N½ 20-16-10w.

Bornholdt and Bornholdt North, McPherson County, have been joined. With completion of Alva Billings' Hill 1, SEc SW 16-14-14w, Russell County, as a Lansing-Kansas City producer with a potential of 1830 barrels, the old abandoned field of Fink has been joined with Hall-Gurney, which now includes 13,600 acres.

Gulf Oil Corporation's Houghton 1, C S½ SW NW 10-4-19w, 10 miles northwest of Bow Creek pool, Phillips County, was plugged in Arbuckle lime at 3575 feet. Anhydrite was topped at 1505 feet, Fort Riley at 2130 feet, Neva at 2457 feet, Base Americus at 2610 feet, Topeka at 2967 feet, Base Oread at 3191 feet, Oswego at 3197 feet, Base Kansas City at 3419 feet, Conglomerate at 3516 feet, and Arbuckle at 3526 feet.

Northeast of South Bemis pool, 3½ miles, Ellis County, Lario Oil & Gas Company abandoned Patter "A" 1, C W½ NW SW 20-11-16w. Kansas City lime was based at 3325 feet, and Sooy conglomerate topped at 3360 feet. No show was reported in Arbuckle lime at 3560-66 feet.

Continental Oil Company's Borger 1, NW SW NE 33-16-14w, 4½ miles west of Ainsworth pool, Barton County, failed to locate commercial shows. Topeka lime was logged at 2920 feet, Lansing at 3246 feet, Sooy at 3455 feet, and Arbuckle lime at 3495 feet.

Shell Oil Company plugged O'Neil 1, NEc 27-32-3e, 3½ miles north of Graham pool, Cowley County, which showed mud, water and a scum of oil on drill-stem test of Arbuckle lime. Kansas City lime was topped at 2595 feet, and four successive oil stains cored at 2631-2644, 2672-82, 2703-09 and 2714-26 feet. Oswego lime was penetrated at 2842 feet, Mississippi lime at 3112-3271 feet, Misener sand at 3419 feet, and Arbuckle lime at 3421 feet. Oil-stained lime with sulphur odor was cored at 3424-31 feet, slight odor was noted at 3443 feet, and hole was bottomed at 3465 feet.

North Texas

Hapgood Offsets Reach Pay And Show for Oil Wells

Two offsets to the Hapgood discovery, Clay County, were in pay formation and showing oil. Phillips Petroleum Company's Hapgood 1 found top of Caddo at 5890 feet, and drilled into Simpson series at 6190 feet. Ellenburger was topped at 6420 feet. Returns showed oil stains and odor at 6442-40 feet. Operators reamed hole to the latter depth, preparatory to deepening. The test drilled an unusually thick Simpson section, 230 feet, and is the first to identify more than a few feet of the series in this area. Producers in Ringgold pool, 7 miles northeast, found the Bend in contact with the Ellenburger, no Simpson being indicated. This well is a west offset to E. E. Norwood et al's K. N. Hapgood 1, Ordovician discovery. Offsetting it to the south is R. C. Lipscomb's Hapgood 1, which topped Caddo at 5943 feet and landed 6⅝-inch casing at 6077 feet. After drilling plugs and going to 6103 feet, cores showed saturated conglomerate and sandy lime. On test through ¾-inch choke, it made 27 barrels of oil and 48 barrels of salt water in four hours.

A ¾-mile west extension was indicated at Ross pool, producing from Caddo lime, at Petroleum Producers et al's Ross 1, Section 8, B.B.B. & C. Survey, Clay County. After making a little free oil from the formation at 5543-59 feet, the test was treated with 5000 gallons of acid. An undetermined volume of oil was produced into pits during a steady, three-hour flow. In the same area, a mile north of the same pool, R. H. Deering & Son's Hatfield, in the Glass Survey, had tools in the hole to drill plug at 5445 feet.

In Young County, Kerlyn Oil Company and Phillips Petroleum Company's Dalrymple 1 (W. F. Tiffin Fee), wildcat 1½ miles north of Knox pool and proposed 4400-foot test, picked up good shows above 3000 feet. Operators will run casing for a test. First showings were picked irregularly between 2540 and 2952 feet. On drill stem test with packer at 2923 feet, it made 330 feet of oil with some mud. Other tests recovered lesser amounts of oil with additional volumes of drilling fluid. Electrolog was run and a casing spot picked at 2920 feet above present bottom of 2953 feet. The test is 2½ miles southeast of Lovingtown.

Saturated sand was picked up in an Archer County wildcat, Jack E. Kadane's J. H. Griffin 1, Section 3, Palo Pinto School Lands, at 4334-47 feet. Nearest production is a mile west where Deep Oil Development has production from the 4400-foot zone. Five miles southeast of Archer City in the same county, Adams Oil & Gas Company's Turbeville 1, wildcat cored sand and broken shale at 3600-09 feet, and was deepening with no shows reported.

Six miles southwest of Archer City, swabbing was being continued at W. B. Hamilton's Cartwright 22, Webb Survey, which found fair saturation in Mississippi chert at 5211 feet. While the well at first indicated a good completion, tests have not come up to expectations.

Cranfield & Roger's McKay 1, Park Springs, Wise County wildcat, was shut down for orders at 5864 feet in Bend conglomerate showing some free oil. A 50-quart shot had little result. Estimated possible production was not more than three barrels per day. It may be deepened.

In Wilbarger County, where Fargo pool marks the northwest end of deep production, Amerada Corporation's Folley 1, Section 35-15, H&TC Survey, four miles north of Tolbert, failed to find Cisco at 3250 feet and was drilling for Strawn, expected at about 4446 feet. Bottom was at 4118 feet. Another wildcat in the same county, Andrews & Barnes' Clarida 1, Section 97, H&TC Survey, south of Vernon, was drilling below 2000 feet on a prospective 3700-foot test.

Motley County Wildcat Near 5950 Feet

Humble Oil & Refining Company's Matador Land & Cattle Company 1, Motley County wildcat, was drilling lime and chert near 5940 feet, below common pay horizons in other Panhandle areas.

In Gray County, L. S. Hobbs' Jackson-Davidson 1 was at 3120 feet in lime and dolomite. Oil shows were recorded between 2998 and 3102 feet, and test was plugged to the bottom of the shows. After a 500-quart shot, it filled 600 feet with oil. The test is in an area of failures and small producers.

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West Texas

Slaughter Extended South; Pecos Wildcat Given Test

A Terry County wildcat, Gulf Oil Corporation's Mallett 4, was drilling hard lime below 5125 feet with no shows. At about 5100 feet, the test recovered cores showing sulphur water and some oil in lime. Porosity was low. Between 5056 and 5071 feet, cores showed fair saturation in low-porosity lime. It is about 2½ miles west of Slaughter field. Nearest well is a dry hole drilled by same operators in Section 5, PSL Survey.

A south extension of Slaughter pool was provided at George Livermore, Inc.'s M. E. Jacobson 2, Terry County, Section 6-D11-PSL. Pay, topped at 4977 feet, was drilled to 5036 feet in lime. On potential test, the well flowed 164 barrels of 32-gravity oil in 6 hours for a daily potential of 656.88 barrels. It was treated with 4000 gallons of acid.

Sloan & Zook's Bailey 1, wildcat 4 miles northeast of Wellman in the same county, was below 2260 feet.

Frank J. Downey's James 1, wildcat in Gaines County, 8 miles west of Seminole pool, had slight shows in lime above present depth of 5253 feet. Casing was landed at 2010 feet, and operator was considering running a secondary string to a lower setting for a thorough test of the formation. On standing, fluid rose 3600 feet in the hole. There was no free oil.

Pecos County's Ordovician discovery, shut in since the first of the year through lack of outlet, was opened for a test. Olson Drilling Company and Bryce McCandless' Crockett 1, two miles from Apco Ordovician production in the northern part of the county, when opened for 11 hours, made a flow of 988 barrels through 2½-inch tubing. Pressure was 110 pounds on tubing, and gas volume was estimated at over 11,000,000 feet. The well, in lower Ordovician at 4518 feet, is producing from Ellenburger lime after having been acid treated. In the same area, north of Apco field ¼ mile, Humble Oil & Refining Company's Shearer 1, made a tubing flow of oil and water, and operator has killed well and pulled tubing to cement off the water source.

East of Shearer, a pay geologically deeper than adjacent production has been tested at Davis & White's Ed. Fromme 1-A, ½ mile east of the field. A pay sand was drilled at 1878-82 feet which showed saturation. On pumping test, about 50 barrels were recovered in 4 hours and hole was being deepened. A lime just above this sand is a prospective pay if commercial production is not encountered in formations to be drilled. Only slight shows were picked up in the regular Shearer sand zone at 1400-70 feet. Material was being moved in for Keene & Beesley's Slaughter 1, wildcat in Section 30, Block 129, T&STL Survey, 8 miles west of the Terrell County line. Magnolia Petroleum Company has rigged up rotary equipment for an outpost try ¼ mile northwest of Taubert & McKee's Simpson-sand discovery, Markley Heirs 1.

Forest Development Corporation's Whisenant-Shell 1, Yoakum County semi-wildcat, tested lime at 5410-5485 feet through perforations. Only a rainbow of oil showed on water estimated at 15 barrels per day. Bottom is 5515 feet in lime. The same operator's W. L. Bradley 1, 7 miles south of Harper field, Ector County, was shut in after failing to produce following treatment with 10,000 gallons of acid. On test, it made 500 barrels of fluid, chiefly mud, water and acid load.

A semi-wildcat has been staked in Ector County, Stanolind Oil & Gas Company's Cowden Heirs B-1, section 12-44-T1N-T&P Survey, a mile west of the company's Cowden 1, recently completed for 100 barrels on pump from Clear Ford at 5210 feet.

Gulf Oil Corporation's O'Brien 147, between Halley and O'Brien fields, Winkler County, is another link connecting the two fields. Scattered and increasing shows of oil were encountered from 2771 feet, and at 2797 feet the well began flowing from the sand.

In Cochran County, Atlantic and Rhode's Dean 1, wildcat three miles west of Duggan field, ran into a fishing job. After drilling cement plug at 5030 feet in lime, tools were lost. Operators were rigging up rotary to clean the hole.

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Southwest Texas

Mud Island Prospect Gets Further Testing

Having deepened to 9257 feet, Gulfboard Oil Corporation et al's State of Texas 1, on the south shore of Mud Island in Aransas County, was being tested. It is in Aransas Bay and is six miles southeast of Rockport. It previously had been tested at 8555-88 feet, flowing salt water with a showing of oil. Deepened, a string of 5½-inch was run to bottom. Several sands are to be tested through perforations. Should these fail, another attempt will be made in the 8500-foot zone. On the first test, the whole sand section was tested, and it is possible that the upper several feet may provide a clean oil producer.

In Nueces County Texas Conservative Oil Company's Flinn 5-B in the South Clara Driscoll field, was finished through perforations at 5826-30 feet, flowing 119 barrels of 40-gravity clean oil per day through 11/64-inch choke and showing pressures of 375 pounds on tubing and 780 pounds on casing. The operation is the discovery of another Frio zone for the area.

Shield and Allen & Morris' Allen-Gallagher 1, 4700 feet north of the Shield field, has been finished as a high gas/oil ratio producer. It was making an estimated 1,500,000 cubic feet of gas along with 153 barrels of 56-gravity oil per day through 5/32-inch choke under 2385 pounds tubing and 2525 pounds casing pressures. Perforations had been made 6970-74 feet, a new pay for the area.

Seaboard Oil Corporation's Chapman Estate 1, Section 78, and 8 miles west of Chapman Ranch, was going ahead below 6200 feet, headed to possibly 8000 feet. It had a distillate sand at 4025 feet in the Catahoula.

A second oil producer in the new 5200-foot Marginulina sand was completed in the Lolita field, Jackson County, by Magnolia Petroleum Company. Mary Mitchell 4, 784 feet south of Mitchell 3, discovery of the horizon, was finished at 5280-86 feet, flowing 258 barrels per day through 11/64-inch choke.

On the east limits of the same field, Wellington Oil Company drilled L. Ranch 1-A to 7282 feet, deepest level in the area. It was plugged back for completion in the regular 5900-foot sand. It previously had encountered a new zone for the pool at 5855-55 feet.

George Echols Oil Company's (Titantic) T. C. Edwards 4, west outpost 2400 feet from distillate production on the Edwards Ranch structure in Victoria County, has been abandoned at 6012 feet.

Earl Callaway's M. W. Smith 1, discovery of an east extension and new horizon in the Ben Bolt field, was flowing 90 barrels of 30-gravity oil per day after gas lift was installed. It was completed through perforations at 4863-70 feet.

Two locations have been stated for outposts to the LaGloria field of Brooks and Jim Wells County by LaGloria Operators Committee. These are in connection with the development of the several condensate zones in the field for supplying a recycling plant now under construction.

Willamar field of Willacy County was definitely proved with the completion of Pan American Production Corporation et al's P. Garcia (Willamar Community) 1-A in the Frio zone, flowing 263 barrels of clean oil on a 24-hour gauge through ¼-inch choke. The well was finished through a series of perforations at 7620-34, 7644-60 and 7668-78 feet with a total of 70 shots. It showed a gas/oil ratio 200 to 1 with the working pressure 350 pounds on tubing, casing being sealed. The oil is heavy Mirando type, dark brown and 29.9 gravity.

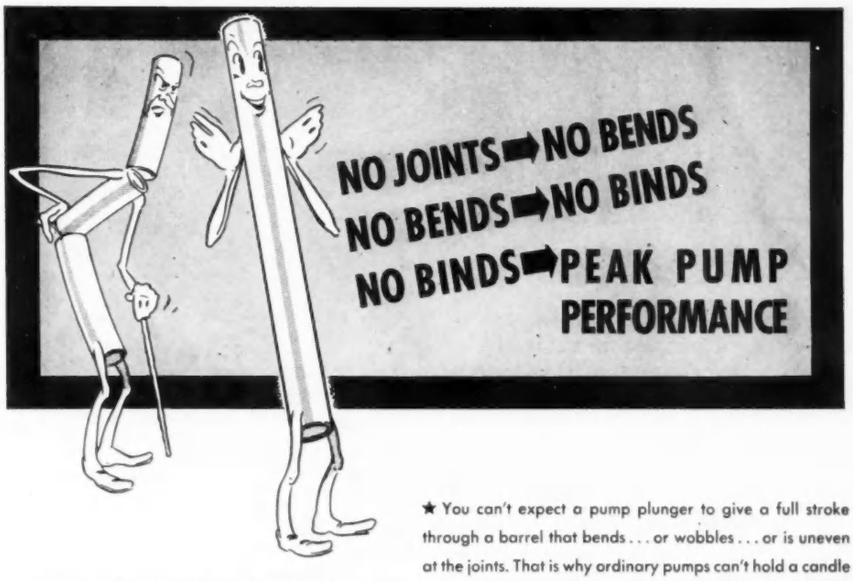
The well is located in Share 13, San Juan de Carricitos Grant, six miles southeast of Willamar. It was drilled under contract by Trinity Drillers, Inc., of San Antonio. The second test is being started one location southeast.

This is the first oil discovery this far down dip in the Rio Grande Valley basin. Otner deep production in Hidalgo, Willacy and adjacent counties has been distillate and gas with gravities ranging from 50 upward.

Previously, Shell Oil Company had a 7500-foot producer on the La Sal Vieja prospect in this county, but after making a limited amount of oil and a large volume of salt water, it was abandoned.

Hidalgo County Location

More locations were staked in Nichols pool in Hidalgo County, Yzaguirre and Boyle fields in Starr County. These new developments, together with an exten-



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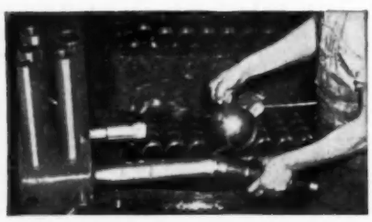

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SELLS AND SERVICES DEEP WELL PLUNGER PUMPS AND SUCKER RODS

sive program in a number of the present fields give this area considerable attention.

A minor south extension to the Boyle field was being provided with Sun Oil Company ready to complete Vela 1, which is in sand at 3179-93 feet. It is bottomed at 3223 feet. This well is completing in the same sand which was recently opened by Borsodi Petroleum Corporation in a Sun farmout.

Sun Oil Company was completing Mateo Saenz-State 2, 1716 feet north of North Rincon production, set casing at 4640 feet after drilling to 5266 feet. Several sands were encountered above the casing level.

Overcoming the mud intrusion, W. R. Davis & Company's W. F. Albrecht 1-B, on the Weser prospect in Goliad County, was being completed through perforations at 5246-52 feet where 24 shots had been made. The well previously flowed 91 barrels of 43-gravity oil in 24 hours through 3/16-inch choke under 225 pounds tubing and 800 pounds casing pressure. The well opens Cook Mountain sand production for the area. This is the first oil production in this zone in the entire Pettus district, the nearest well in this zone being at Carolina-Texas field in Webb County, more than 100 miles southwest.

The well is in the Hancock Survey and is 797 feet west 137 feet north of Steinberger Petroleum Company's abandnoed Albrecht well. Drilled last year, the latter flowed gas and distillate from the Cook Mountain sand, but was quit as a failure after testing other sands up the hole.

The Weser field was opened by The California Company (now Standard of Texas) several years ago with a 4800-foot Yegua sand producer. This well was limited in production and finally was abandoned.

East Texas

Long Lake Extension Northeast Is Failure

The attempt to extend Long Lake field of Anderson County a mile northeast failed at 5474 feet in water-saturated sand. The well is Roger Lacy's Abbott 1, E. Ewing Survey. East of the same field, another try to extend the limits of production is being made at T. Harvey's Cartmel 1, E. Ewing Survey, now drilling at 2851 feet to the Woodbine sand. The latter well has been listed also as Brothers Oil Company's Cartmel 1-A.

H. S. Killingsworth is moving in derrick at Long Lake for H. A. Tull 1, a Tide Water Associated-Seaboard Oil Company farmout. It is 467 feet from the north line and half-way between east and west lines on a 41½ acre tract. In the same field, two wells are below 4600 feet and Tide Water Associated Oil Company-Seaboard Oil Company's Wade Evans 1 has perforated casing between 5230 and 5250 feet to complete.

Tide Water Associated Oil Company's Moody 3, in Cayuga field, Freestone County, ran electro-log which picked the first sand at 3930 to 3947 feet and a second at 3992 to 4026 feet. Total depth is 4026 feet with only 2 feet of hole under the casing spot. Two additional wells in the field are below 4000 feet.

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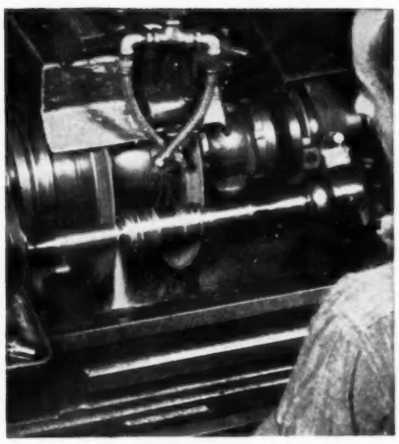

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Texas Gulf Coast

Extension and New Pay Looms For Ogburn, Harris County

L. M. Josey was completing Fee 1, west extension test for the northwest section of the Ogburn field, Harris County, in a new pay at 7020-28 feet. The well was flowing into tanks, cleaning slowly, at an estimated rate of 25 barrels of oil and salt water daily through 7/64-inch choke. On drill-stem test, this zone, perforated at 7020-30, feet yielded 250 feet of 38-gravity oil and 250 feet of salt water. Completion would establish third productive horizon for the field, and second oil section. This 1940 discovery has looked progressively better, scoring three long extensions against one failure. Several other horizons tested in the Josey well will come in for attention on subsequent tests. A new sand at 7130-40 feet yielded gas and distillate on drill-stem test, as did another at 6967-73 feet, while seven other sands untested in previous wells indicated productive possibilities. Mrs. Joyce Richardson and Christian-Carpenter Drilling Company were at 5880 feet in Backen 1, farmout from Pan American Production Company on south offset acreage to the discovery.

Red Fish Reef, Galveston Bay distillate field, appeared in line for a third sand as Humble Oil & Refining Company ran tubing to test State 3-A-248, a mile northwest of the discovery. Pipe was set on bottom at 10,420 feet. Tests will be made first of oil sands at 10,115-25 and 10,325-375 feet, with distillate sands logged at 10,000-020, 10,031-038, and 10,123-133 feet to be tested if oil sands do not produce. The discovery was completed at 8814-16 feet for 25 barrels of distillate daily, while State A-2-246, 1150 feet southeast of the discovery, flowed 228 barrels of 43-gravity distillate daily from 9941-55 feet, both pays being in the Frio. The company pursued its aggressive drilling policy, rigging up State A-9-263, a mile west of the discovery. State A-4-203, northernmost test, was abandoned at 8966 feet.

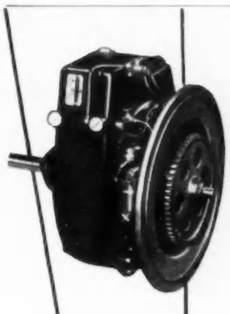
Potential for Fishers Reef discovery, Humble Oil & Refining Company's Trinity Bay strike of a week ago, was 188 barrels of 32.6-gravity oil daily, with trace of salt water, via 5/8-inch choke, from Hackberry of Lower Frio at 8961-8963 feet. Tubing pressure was 1500 pounds, gas/oil ratio 840/1. This officially established the Upper Texas Gulf Coast's fourteenth 1940 strike, and the second entirely marine field for the sector. The company indicated that it would pursue Fishers Reed development as rapidly as it has that at Red Fish Reef by moving in materials for State 5-C-45 on a tract offsetting the discovery.

Rowan Extension Attempt

At Rowan, Brazoria County distillate field, Humble Oil & Refining Company will attempt another extension, Hubbard 3, William Harris Survey, 900 feet northwest of Hubbard 1 and northeast of Hubbard 2, which was drilling at 7851 feet in shale. Rowan & Nichols and Texas Gulf Producing Company continued to test Bradbury 1, discovery of an 8900-foot distillate horizon.

Stanolind Oil & Gas Company will apparently test other sands in Hulen 1, discovery at Alta Loma, after gauging 65 percent salt water from regular level at 9182-92 feet and squeezing perforations. This well blew out last summer and produced at the rate of 20,000 barrels of fluid daily for several weeks before complete control was attained. The heavy draft has apparently flooded the sand near the Hulen 1 bore, although no effects are known to be visible in Hulen 2.

Wilcox exploration offered no encouragement. McDannald Oil Company's Coline Oil Company 1, wildcat in Jas. Rankin Survey, Cold Spring prospect, San Jacinto County, continued to core and drill within a few hundred feet of the 8000-foot objective. Test was credited with logging thin oil sand at 7660 feet. Paleo points picked are Textularia Hockleyensis 3400 feet, Operculina 4260 feet, and Wilcox 7289 feet. Superior Oil Company's McWhorter 1, east of Magnolia in Montgomery County, found the Cockfield low, with sands bearing salt water, and drilled at 7700 feet toward Wilcox. Near Pinehurst, Montgomery County, a lease play was underway, taking in the Canfield, Hensley, BBB&C RR, and Cochran surveys. R. A. Irwin was reportedly trying to work out a drilling deal on a Standard Oil Company of Texas farmout



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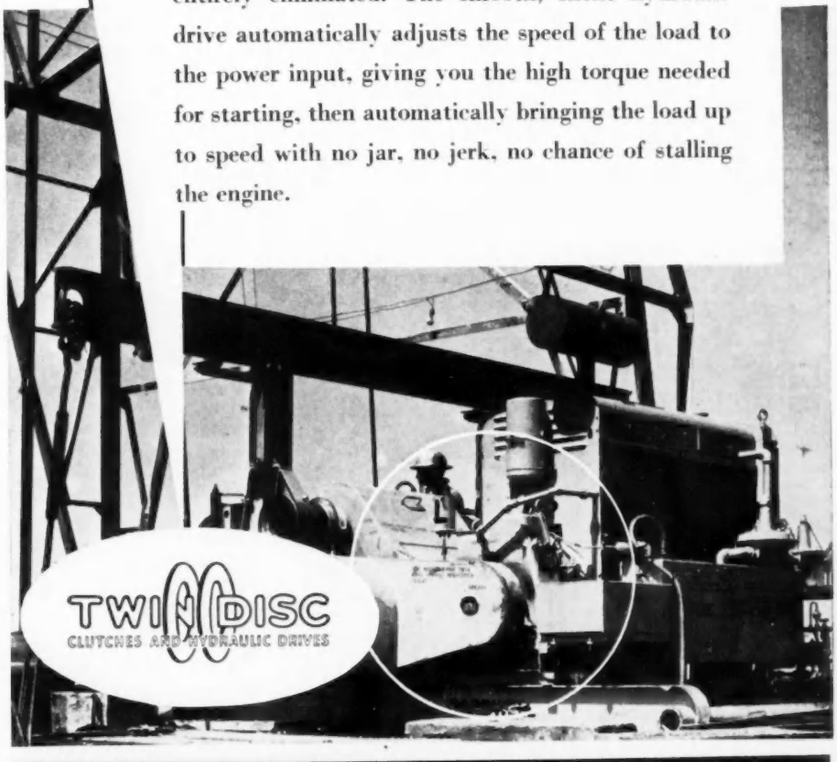

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northwest of Magnolia, in the same general area in which Pan-American Production Company has a seismograph crew. West of Willis, in Cude and Pevehouse surveys, Union Oil Company of California had a seismograph crew, with Atlantic Refining Company working the Sealy and Cartwright surveys southwest of Conroe.

On the northwest flank of Hitchcock, Galveston County, Maco Stewart & Sons abandoned Stewart Title Guaranty Company 1, semi-wildcat, at 7002 feet after all sands showed salt water. Helmerich & Payne quit Herman 1, wildcat on Sugar Valley prospect, Matagorda County, at plugged-back depth of 7336 feet after electrologging to 9505 feet.

S. Bashara and Renwar Oil Company abandoned Sugarland Industries 2, north flank test of the Sugarland field, Fort Bend County, in salt topped at 5200 feet. John Deering staked Buck 1, 7000-foot wildcat in Jas. Lynch League 3 miles southwest of old Washington, Washington County, and moved in materials.

Transfer of Joaquin Properties Approved

Paul Pewitt of Longview, Texas, formally took over holdings of Redditt and Gray in the Joaquin, Shelby County, Texas, area last week, including three gas wells. The transfer had been ratified by the federal court at Fort Worth. Pewitt plans several early tests. Southern Natural Gas Company which recently secured considerable holdings in the Joaquin area is trying to unitize the block into 160-acre units for early development.

Oakville Exempt

The Texas Railroad Commission has entered an order exempting the Oakville field, Live Oak County, from shutdowns.

The commission has also ordered an increase in the allowable for the Tehuacana field, Limestone County, from 90 to 180 barrels daily. The field is also exempt from shutdowns effective November 24.

Texas Permits

The Texas Railroad Commission last week authorized permits for drilling 125 wells in Texas, 51 less than were approved the week before.

There were 31 permits granted for wells in the East Texas field, with 26 in Gregg, 4 in Rusk and 1 in Upshur County. From the remainder of the East Central Texas area, 4 locations were reported.

Permits for drilling 24 wells were authorized in North Texas, while 12 were reported from West Texas and one from West Central Texas.

Southwest Texas led the state with 36 locations and Gulf Coast operators were allowed to drill 17 wells. No permits were reported from the Panhandle.

Arkansas Permits

Three drilling permits were authorized last week by the Arkansas Oil & Gas Commission, as follows: Franklin County—Ozark Natural Gas Company's C. C. Pierce 1, C NW SE 15-8n-29w; Nevada County—Coker and Grieves' M. W. Jones 1, NE SE NE 2-11-21, and Union County—Walter Lown's E. M. Hughes 1, SWc E½ SW SW 32-17-14.

Louisiana Gulf Coast

St. Martin Parish Test May Provide New Field

Superior Oil Company may establish South Louisiana's fourteenth 1940 field at Section 28 Dome, St. Martin Parish. Stewart 1, north flank wildcat, flowed considerable 50-gravity distillate and an estimated 2,000,000 feet of gas daily from 92 perforations in 5 sets from 9129 to 9195 feet. Tubing pressure was 3510 pounds, with 10/64-inch choke. Operators pulled tubing, plugged to 9200 feet and re-ran tubing to 8978 feet for another test of the same section. The wildcat is the seventeenth test for the dome, which was discovered in 1917 by Lee Hager from surface geology. The dome is the longest known unproductive salt-core structure in the state, and the tenth to be established as a salt plug. The company's Iowa-St. Martin Land Company 1, 2 miles south of Bayou Bouillion production, same parish, was cleaning out at 7535 feet after plugging from 7894 feet. Whipstock may be set to deviate. The wildcat had gas-distillate section at 7497-7507 feet, which may be retested.

The Texas Company opened a second sand at Lake Salvador, promising St. Charles Parish 1940 strike. State-Lake Salvador 2 gauged 450 barrels of clean oil daily from 10,115-135 feet, via 3/16-inch choke, with pressures not available. The discovery, Section 26-16s-22e, completed in September, flowed 840 barrels daily under 1600 pounds pressure from 9775-9800 feet. The company, in control of the field with 48,347 acres of state lake bottom lands taken at annual rental of $16,500, swung into a brisk development program, making location for Nos. 5, 6, and 7, while Nos. 3 and 4 were drilling.

Shell Oil Company released perforation depth on St. Martin Parish School Board 1, West Lake Verrett field extension, St. Martin Parish, revealing that a new sand has been opened. Completion was for 235 barrels of oil daily, no water, through 13/64-inch choke, from 44 holes at 7468-82 feet. Tubing sand casing pressures were 750 and 1600 pounds. Hole bottomed at 8974 feet. Previous production has been from Oligocene at 8018-57 feet.

Extension for Neale

At Neale, Beauregard Parish, Atlantic Refining Company was swabbing oil from Rice Land & Lumber Company 1, 1½-mile west extension, after test failed to flow when washed. A drill-stem test in the Wilcox at 8345-63 feet filled the tubing in 9 hours with 30 percent salt water. It is understood that the test was drilled mainly for geological reasons, with present performance being more than was expected.

Shell Oil Company obtained first oil production at La Pice, St. James Parish 1939 distillate discovery and opened a new sand for the field. Federal Land Bank 1, Section 38-12s-15e, was completed for 454 barrels of 38.9-gravity oil daily via 3/16-inch choke from perforations at 7647-52 feet. Tubing pressure was 1400 pounds, no water showing. The test, third for the field, found several sands from 7350-7750 feet, and odor of oil at 7801-12 feet. Each completion here has registered a new sand, the discovery flowing distilalte from Oligocene at 10,915-928 feet, and the second test producing distillate from 11,340-355 feet. The company remains the sole operator, controlling most of the leases in the area.

St. Mary Parish Wildcat Testing

Bateman Drilling Company continued to test Foster 1, closely watched wildcat near the town of Franklin, St. Mary Parish, with disappointing results. Drill-stem test at 10,378-395 feet recovered salt water, as did test at 10,402-18 feet. Shows were found in cuttings at 1560-1640 and 1870-90 feet, and cores at 9350-58, 9750-81, 10,345-355, 10,386-406, 10,415-420 and 10,461-466 feet. Saturation in several of these zones varied from 5 to 8 percent, and porosity from 27 to 30 percent.

Wildcat completions included Eastman Oil Company's Fee 1, Section 33-9s-2w, city limits of Jennings, Jefferson Davis Parish, a 2500-foot failure, and Hamman Exploration Company's Hoffpauir 1, Bayou Chopique area, Calcasieu Parish, 9100-foot failure. Helis and Danciger Oil & Refining Company quit White and Mallard Bay Land Company 1 at 9503 feet, the wildcat being in Section 23-13s-3w, Ballard Bay prospect, Cameron Parish. W. T. Burton abandoned State-Lake Catherine 3, Orleans Parish wildcat, at 9677 feet after running casing to bottom. Louisiana Land & Exploration Company staked State-Pointe Au Fer 1, ½ mile southwest of U. S. C. G. station monument in Section 3-21s-11e, Terrebonne Parish.

The state exacted its first penalty for non-development of state leases, forcing The Texas Company and Louisiana Land & Exploration Company to release 187,000 acres off the Terrebonne Parish coast. Part of the acreage returned surrounds the Lake Pelto and Caillou Island fields, although no producing acreage was affected by the action. The returned acreage is in the eastern section of a vast block taken by the companies in 1928. An attorney general's opinion, approved by the state mineral board, also ordered that the western half of the block, approximately 300,000 acres, will be held in forfeit at some time in the future, unless diligence is shown in prospecting and development.

The action by the state attorney general's office is an outgrowth of a general probe ordered 6 months ago, after Attorney General Eugene Stanley informed Governor Sam Jones that as much as $100,000,000 cash and mineral rights might be due the state. The attorney general stressed the fact that the surrender was forced solely because of non-development.

A new sand for the Sorrento field, Ascension Parish, may be in immediate prospect as Sorrento Syndicate set 5½-inch casing at 4440 feet in United Lands Company 1. Oil sands were logged at 4280-4300 feet and 4360-4400 feet, with oil and gas recovered on test of the latter section. Report from an outside source said that these sections were not the same as Middle Oligocene sands currently producing at 4301-32 feet and 4408-4430 feet.

North Louisiana

West Caddo Gas Strike Indicates New Field

Possibility of opening a new shallow dry gas field in western Caddo Parish near the Texas line, was given last week when Delta Drilling Company's T. E. Dunn 1, NW NE NW 24-17n-16w, blew out making gas from 2551 feet in what was tentatively identified as the possible Fredericksburg-Paluxy contact. It was a 2600-foot test on a block of 3000 acres.

The well blew out November 17 and was not brought under control until November 21. Gas flow was estimated at 15 to 25 million cubic feet daily. A spray of salt water appeared after the well had blown out of control for three days.

The search for new fields along the Angelina-Caldwell Flexure, spurred by discovery this year of two shallow fields in LaSalle Parish—Olla and Nebo—broadened with staking of wildcat locations during the last week in Caldwell, LaSalle, and Winn Parishes. In Caldwell Parish, Gholson and Hodge are rigging Louisiana Central Lumber Company 1, NW NE 35-12n-3e. In LaSalle Parish, Hunter Company moved in material for Pipes 1, SW SE SE 18-8n-3e; and in Winn Parish, Atlantic Refining Company spudded Goodpine D-1, C SW NE 17-10n-2w. The latter test is near a recently abandoned operation drilled by the same company to 3550 feet. In the same vicinity Louark Producing Company took four separate spreads in Section 16, 18, 20 and 24-10n-2w. Adolph Baker and A. L. Waller are leasing in the same area which is near the hamlet of Packton. The Texas Company is leasing in Concordia Parish, among other acreage having secured option on the 839-acre R. S. Wiley tract in Sections 18 and 33-7n-7e. Sinclair Prairie Oil Company abandoned a 6023-foot wildcat in Section 39-10n-8e, Catahoula Parish.

J. E. Watts prepared for production test after a reported oil showing at Tanner 1, NE NE 18-10n-10w, Natchitoches Parish, having cemented 5½-inch casing at 3220 feet, 20 feet off bottom. In the erratic Spring Hill area, Sabine Parish, Roy Raines bailed Carter 1, NW SE 27-9n-11w, after an oil showing at 2025 feet.

Union Producing Company rigged to deepen to the 5200-foot Pettet horizon its Jeter 1, Section 23-17n-12w, discovery well of the "Jeter sand" at 4267 feet in the Sligo field, Bossier Parish. In the same parish, Edward DeArmand and associates abandoned a 3000-foot wildcat test in Section 8-20n-13w. Boyd F. King announced plans for a Travis Peak test just west of the Sugar Creek field, Claiborne Parish, his acreage centering around SE SE 25-20n-6w.

Twenty locations were announced last week in North Louisiana of which 10 were for the Olla field, LaSalle Parish, H. L. Hunt, discoverer of that field, made location for the seventy-fifth test on Louisiana Central Lumber Company fee. The discovery well and a majority of the field's producers have been drilled on this company's land at Olla.

Forty-seven drilling permits were issued last week by the Louisiana Conservation Commission, of which 30 were in North Louisiana, divided among the following parishes: Bossier 1, Caddo 10, Claiborne 1, Grant 2, La Salle 14, Sabine 1, and Webster 1. The 17 in South Louisiana were in the following parishes: Ascension 1, Calcasieu 1, East Baton Rouge 1, Iberia 3, Iberville 1, Lafourche 2, Plaquemines 2, St. Charles 1, St. Martin 1, St. Mary 1, Terrebonne 2, and Vermilion 1.

Arkansas

Nevada County Wildcat Quits

A 1300-foot wildcat test in Nevada County was abandoned as a dry hole last week at Coker Oil Corporation's Jones 1, NE SE NE 2-11-21. This was Arkansas' lone abandonment of six completions.

One oil well was completed at Buckner, Columbia County, the field's twenty-first producer, and one was completed at Magnolia, the same county, making 114 oil wells in the latter field. Two small wells were completed in the Urbana field, Union County, and one small well was completed in the Lewisville-Stamps field, Lafayette County.

Lion Oil Refining Company perforated casing and prepared production test at Dickens 1, C NW SW 16-18-22, in the Dorcheat field, Columbia County. Total depth is 8940 feet.

Mississippi

Tinsley Dome Test Has Thick Section of Midway

Thickest section of the Midway sand zone in the Tinsley Dome field, Yazoo County, was logged last week in Union Producing Company's Robinette 5, NE 19-10n-2w, a southeast edge test, which picked up 110 feet of sand topped at 4840 feet. Elevation is 259 feet. Base of sand formation was 4960 feet and bottom was at 4988 feet, where formation tester was run to recover 1850 feet of oil, with 10 pounds of pressure. North ¼ mile of this operation, another location has been made by the same company. Interest has been augmented with the showing in this southeast edge test, the fault being thought to be in this direction.

Four oil wells were completed during the week at Tinsley Dome, bringing to 98 the number of producers in that field, which was discovered in August, 1939. Two new locations were made in Mississippi during the week, one at Tinsley Dome, and the other in the Jackson gas field, Hinds County.

Two wildcat tests in Yazoo County were abandoned, both in the Eutaw (Blossom) sand. The abandonments were Edward DeLoach's W. W. Wilburn 1, SE SE 6-12n-1e, abandoned at 6020 feet, and Arcarea Reserve Company's J. G. Holmes 1, SE SE 22-12n-1e, abandoned at 5509 feet.

Sun Oil Company started core-drill tests on a large wildcat block in Cov-

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ington County, South Mississippi, securing permit to drill A. L. Magee 1, NE SE SE 12-8n-15w, near the town of Collins.

W. O. Allen plans to whipstock and test the Wilcox formation in a test he drilled several months ago on the Glass Dome in Warren County, which ran into salt. Total depth is 4490 feet, and brine in the hole prevented running electric log to definitely determine the Wilcox level for testing. The workover is to get started by December 15.

Michigan

Clare Wildcat Shows More Oil on Deepening in Dundee

Deepened from 3762½ to 3772 feet, Rowmer Corporation and Dan Hughes' Wyman 1, C W½ SW SE 29-20n-6w, Winterfield Township wildcat, Clare County, showed additional oil saturation in the Dundee dolomite, but failed to show an immediate increase in free oil or gas. Acidized with 1000 gallons, it flowed 47 barrels net first hour, 46 barrels second hour and 35 barrels third hour through 2-inch tubing without choke. Prior to acidizing, it had flowed and swabbed approximately 350 barrels of oil over a 10-day period. Natural, it carried 2500 feet of oil in 5-3/16-inch casing at 3762½ feet, 4½ feet in the dolomite. It was originally treated with 300 gallons. Before the last acid and deepening, it had flowed about every third day to average 50 barrels per day.

Rowmor and Hughes' test is three miles west of Sun Oil Company's State 1, Section 35-20n-6w, a wildcat that pumped 46 barrels of oil and 10 barrels of water daily for two months from the same Dundee dolomite zone. Wyman well was higher structurally than State 1. It is about six miles due north of Dundee dolomite production in the Temple field.

Sun Oil Company moved in rig for first offset to Wyman 1, 1320 feet due west a 20-acre location. Cities Service Oil Company has both the south and east adjoining leases, while The Pure Oil Company and Gulf Refining Company have big spreads in the area.

Sun Oil Company announced intentions to plug Kidder 1, NW NW NW 8-3n-9w, Barry County wildcat, the deepest test drilled this year in southwestern Michigan. It was bottomed at 5013 feet after drilling through the St. Peters sandstone. While non-commercial, the deep test should prove an important marker for future development in that district. With sea elevation of 796 feet, it topped St. Peters sand at 4960 feet with a half bailer of oil showing from 4960-62 feet in 10 hours. Oil was 38-gravity and dark, and the zone showed practically no gas. Geologists observing the well reported it the best free oil show in the St. Peters sand ever logged. It drilled out of the St. Peters at 4973 feet, and picked up a shale break which carried 500 feet of water in a 4-inch liner at 4991-5013 to 5013 feet.

Gulf Refining Company's Bateson 1, Section 2-14n-4e, Bay County, projected Trenton and St. Peters test in the central basin area (10,000-11,000 feet), was temporarily held up most of the week after a semi-blowout at 7368-83 feet where gas was encountered at the base of the Salina section.

California

Rio Bravo Has 100 Feet of Oil Zone

Union Oil Company's north outpost for the Rio Bravo field, Crites 72-28, Section 28-28-25, Kern County, topped Rio Bravo oil sand at 11,243 feet, and had logged nearly 100 feet of the zone. Outlook has been some what discouraging since Superior Oil Company's Osborn 1, ½ mile to the southeast, found the top of the zone at 11,090 feet. Commercial success of the Crites test would prove two or three locations between it and the Osborn.

Union Oil Company obtained a northwest extension of the Trico gas field, Tulare County, with completion of Seymour 1, Section 20-24-23. Bottomed at 2461 feet in sand with about 80 feet of zone open to production, on 5-minute spot gauge it flowed at the rate of 7,000,000 feet daily. Top of first Mya was placed at 2385 feet, and top of the B zone at 2412 feet.

Although showings are reported as not overly favorable, Tide Water Associated Oil Company may make a production test on its West Slope 31, Section 20-24-18, Pyramid Hills area, Kings County. Bottomed at 1970 feet in Cretaceous shale, top of the Domengine was marked at 1840 feet, with streaks of oil sand from 1840 to 1900 feet. Streaks of sand were also reported previously from 1023 to 1040 feet, and 1103 to 1188 feet, while gray sand was cored from 1188 to 1214 feet.

Although The Texas Company recently abandoned Everding 1, wildcat in Section 24-17-15, Cantua Creek area, Fresno County at 10,307 feet, with no showings of importance encountered, it is understood that geological data lent encouragement to drilling a third wildcat in the area.

The Superior Oil Company's Tar Springs 1, wildcat in the Huasna area, San Luis Obispo County, Section 24-32-14, was being abandoned after having been taken to 6500 feet, in hard brown Monterey shale. Oil showings were encountered in the shale, but were not of sufficient importance to warrant a test. In this same area, Section 11-32-14, Tex Harvey Oil Corporation's Gilmore Community 1 was deepened to 3883 feet in shale with lenses of sand. On formation test at 3722-3883 feet with valve open two hours, recovery showed light blow of gas with fluid rise of 1800 feet, consisting of half drilling mud and half gassy mud. Operator plans to deepen.

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UNITED STATES WELL COMPLETIONS

Arkansas

Columbia County (Buckner)—
G. S. Hammond et al, Crone 2, 9-16-22 ..... 350 7315

Columbia County (Magnolia)—
Louark Prod. Co., Booth et al 1, 30-17-19 ..... 400 7549

La Fayette County ((Lewisville-Stamps)—
Erwin & Leach et al, E. P. Davis 3, 19-16-23 ..... 25 3450

Nevada County (Wildcat)—
Coker Oil Corp., Jones 1, 2-11-21.. * 1300

Union County (Urbana)—
Marine Oil Co., Thompson B-8, 3-18-13 ..... 50 2996
McCresslenn Oil Co., Hadley 4-A, 3-18-13 ..... 75 3009

California

Fresno County (Cantua Creek)—
Texas Co., Everding 1..... * 10,307

Fresno County (East Coalinga Eocene)—
Superior Oil Co., Cagle 5.....1440 7640

Kern County (Coles Levee)—
Richfield, KCL-A 12-32.....1712 9050
KCL-B 27-4 ..... 344 9333

Kern County (Poloma)—
Western Gulf Oil Co., KCL A-32-2. 720 10,722

Los Angeles County (Rosecrans-Athens)—
St. Anthony Oil Corp., Gordon 6, No. Est. 7882

Los Angeles County (Wilmington)—
Martin-Miller Oil Co., Huck Comm 1 240 3712
A. D. Mitchell, Combate 1..... 200 3645

Orange County (Huntington Beach)—
Signal O. & G. Co., Signal-Bolsa 24-a .....No. Est. 4855

San Luis Obispo County (Huasna) —
Superior Oil Co., Tar Springs 1..... * 6500

Ventura County (San Miguelito)—
Continental, Grubb 19.....1903 6950

Illinois

Bond County—
Arrow Dr. Co., Spindler 4, sw sw sw nw 10-6n-2w 55 1017

Clark County—
B. B. Hartman, Fain 1, sec ne sw 25-10n-14w 6 1352

Clay County—
Shulman, Dehart 1, w½ ne sw 10-3n-7e ..... * 2602

Crawford County—
Nelson Bros., First Nat'l Bank 1, nw sw nw 4-8n-12w ..... * 1031

Edwards County—
Noah & Morrison, Horton 2, nw sw se 13-2s-10e 300 3224
Tuesday Oil Co., Works 1, se ne se 13-2s-10e 350 3170

Fayette County—
Texas, Neathery 14, ne sw ne 6-6n-3e 140 1582
Zephyr Dr. Co., Stevens 6, ne nw se 31-6n-3e 86 1628
Magnolia, Clow 24, ne se ne 5-7n-3e 280 1515
Clow 5, nw se sw 32-8n-3e 484 1529
Carter, Gregg 1, nw sw se 13-8n-3e . 54 1539

Franklin County—
Benedum-Trees, Chenault 3, se sw se 27-7s-4e 225 3154

Hamilton County—
Exchange, Friel 8, se nw se 34-5s-6s 141 2969
Hinkle et al, L&NRR 3, sec ne 34-5s-6e 65 2965
Howell, Campbell 2, nw se nw ne 34-5s-6e 50 2984
W. C. McBride, York 1, nw ne se ne 34-5s-6e 66 2973
Mammoth P&R et al, Jackson 1, swc nw 35-5s-6e 42 2951

Jasper County—
Pure, Robbins 1, ce½ se nw 20-5n-10e 639 2815

Jefferson County—
Magnolia, Hill 1, sw nw se 22-2s-1e.. * 2317
Tex Harvey, Cons. Coal 1, nw nw sw 9-4s-2e ..... * 2928

Marion County—
Big Four, Sherman 1, nec nw nw 9-2n-1e ..... * 3198
Goldberg, Frederick 1, se ne ne se 36-2n-1e ..... * 3527
Texas, Donahue 1, n½ ne sw 3-2n-2e. * 2324
Kingwood, Lowe 1, cw½ se nw 18-4n-3e ..... * 2237

Montgomery County—
C. C. Talifero et al, Nowak 1, se ne nw 11-7n-4w ..... * 1202

Richland County—
Pure, Brown 1, e½ ne se 4-2n-8e 157 3020
Wachtel Cons. 2, e½ sw sw 7-4n-10e 276 2990

Shelby County—
Thorpe & Grant, Woods 2, sw nw nw 32-11n-5w 15 608

Wabash County—
Markham Dr. Co., Harness 1, nw sw ne 34-2n-13w 250 2688
Sam Yingling, Morris 1, ne se se 34-1s-13w ..... * 2699
Continental, Shultz 7, sw se se 8-2s-13w 66 2466
Collins 1, sw se nw 20-2s-13w..... 141 2838
N. V. Duncan, Schroeder 1, se sw sw 11-3s-14w..... * 2886
Longhorn Oil, Helm 4, nw nw nw ne 23-3s-14w..... 229 2879

Washington County—
L. Lilly et al, Noble 1, nw nw ne 31-3s-4w..... * 926

Wayne County—
McClusky, Skelton 2, e½ ne nw 21-2n-8e..... 28 3039
Pure, Barth Cons. 2, ce½ nw ne 5-1n-8e 255 3090
Barth-Hubbel Cons. 2, se nw ne se 5-1n-8e..... 19 3105
Miller 2, ce½ sw se 5-1n-8e.... 41 3090
Garrison-Reed Consl. 1, ce½ sw nw 36-2n-7e..... 31 3085
Pitman 1, cw½ sw sw 36-2n-7e ... 209 3080
Gill 3, cw½ sw ne 21-2n-8e 56 2658
Eason Oil & Weinert, Bright 1, n½ nw ne 2-2s-7e 91 3340
Jack Myers, Cornick 1, ce½ ne sw 4-2s-7e 200 3275
O'Meara, McLinn 1, nwc sw ne 9-2s-7e 68 3275
Lavendar & French, Puckett 1, ne ne ne 17-3s-8e ..... * 3522

White County—
Herndon Dr. Co., Bond 2, ne sw ne 8-4s-14w 125 2708
Mabee Dr. Co., Potter 1, sw sw sw 4-4s-14w 25 2955
D&H Dr. Co., Hon 1, sw nw ne 9-4s-14w 24 2869
Pure, Calvin 3, cse sw sw 9-4s-14w .. 152 2853
Magnolia, Bond 2, ne nw se 8-4s-14w 288 2719
Cox 3, se nw se 27-4s-14w 1061 2881
Cherry & Kidd, Calvin 3, sw ne ne 8-4s-14w 53 2700
Gray 1, ne ne nw 17-4s-14w 242 2712
Gray 3, se ne ne 17-4s-14w 168 2853
Ryan Oil, Bramlett 1, ne nw se 17-4s-14w 183 2705
Superior, Ford 1, ne ne se 22-4s-14w . 290 2948
Fitton 7, sw sw nw 26-4s-14w 64 2955
Ford 1, ne sw se 27-4s-14w 1100 2950
Ford 2, ne se sw 27-4s-14w 650 2945

[*Continued on next page*]

*Failures; †Junked; ‡Million cu. ft. gas.

Summary of Drilling Operations in the United States, Week Ended November 23, 1940

	WELLS COMPLETED							*PERMITS FOR NEW WELLS				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	6	5	.....	1	900	166	212	3	9	138	209	223
California	11	9	.....	2	6,559	1,014	990	16	51	1,012	1,071	1,174
Colorado	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois*	66	52	.....	14	10,177	3,630	3,499	88	266	4,154	496	893
Indiana	10	5	1	4	745	473	254	.....	.....	.....	.....	.....
Iowa	1	.....	.....	1	.....	1	.....	.....	.....	.....	.....	.....
Kansas	37	27	4	6	45,066	1,823	1,312	30	112	1,858	1,420	1,583
Kentucky	10	4	.....	6	67	412	.....	.....	.....	.....	.....	.....
Louisiana	45	25	6	14	4,721	1,556	1,039	47	124	1,526	1,307	1,449
Michigan	22	5	3	14	618	1,115	1,366	17	31	1,010	1,327	1,419
Mississippi	6	4	.....	2	1,425	173	14	.....	.....	.....	.....	.....
Missouri	4	.....	1	3	.....	30	.....	1	3	25	.....	.....
Montana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska	8	8	.....	.....	5,621	36	1	6	13	59	.....	.....
New Mexico*	4	3	.....	1	1,723	586	606	13	25	520	240	293
New York†	16	16	.....	.....	41	896	577	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	39	11	18	10	177	985	901	.....	.....	.....	.....	.....
Oklahoma	50	33	3	14	4,776	1,940	1,871	46	142	1,697	1,878	2,059
Pennsylvania	27	18	8	9	60	3,131	1,406	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Texas	158	115	6	37	61,301	8,992	8,703	125	417	10,039	9,409	10,269
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	13	2	7	4	27	556	518	.....	.....	.....	.....	.....
Wyoming	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total this week	533	342	57	142	144,004	27,776	24,165	392	1,193	22,333	17,912	20,080
Total last week	558	381	37	140	161,097	27,243	23,555	454	801	21,941	17,341	20,080
Total this year	27,776	19,934	1,744	6,106	9,587,357	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.

United States Well Completions—*Continued*

Company, Well and Location — Init. Prod. Bbls. — Depth

ILLINOIS—Continued

Cobb & Briscon, Beer 1, ne ne sw 9-4s-8e ..... * 3500
Tide Water, Shain 2, se nw se 23-6s-8e 146 3089
Exchange & Ohio, Pearce 8, ne se ne 11-6s-9e 200 2279
Pearce 9, nw ne se 11-6s-9e 126 2279
Pearce 7, sw sw nw 12-6s-9e 150 2279
Carter, Green 1, se ne nw2-7s-9e 15 2351

Indiana

Daviess County—
J. W. Cannon et al, Evans 4, sw ne se ne 8-2n-5w 20 608
Gibson County
Papoose Oil, Cooper 15, nw sw sw 13-3s-14w 250 2868
Greene County—
F. R. Young, Shepherd 1, ne se nw 6-6n-5w ..... * 1780
Knox County—
D. Miller Dr. Co., Sanneman 1, sw ne ne sw 24-2n-11w 212 1895
Posey County—
McBride, Swonders 5, se nw nw ne 4-4s-14w 250 2814
Harris-Stewart, Reis 1, se sw ne 1-7s-12w 13 1780
H. C. Lewis, Wolf 1, sw ne se 26-7s-15w ..... * 2015
Spencer County—
C. E. Dice, Grass 5, se se se 2-6s-4w . * 615
Sullivan County—
A. O. Thayer et al, Wilson 1, nec se 23-8n-10w ..... * 825
S. E. Bailey, Wible 1, ne ne nw 36-8n-11w ..... ¶0.5 588

Iowa

Fremont County—
Gruber, Fee 1, c sw se 8-67n-40w (OTD 805) ..... * 1300

Kansas

Barton County—
Shell, Oeser 2, ne sw nw 17-16-11w.1005 3316
Derby, Bernsdorff-Jenke 1, nwc ne 33-16-11w 3000 3362
Cities Service, Bitter "A" 7, cs½ se nw 5-16-13w 3000 3362
Phillips, Bitter 8, cw½ sw ne 6-16 13w 1688 3350
Shell, Peterman 3, sec 13-16-14w (PB 3372) 126 3410
Derby, Frees 4, sw nw ne 3-17-11w. 250 3374
Rabon et al, Anderson 1, ce½ ne nw 32-18-15w ..... ¶5.3 3514
Butler County—
Plymate et al, Graves 1, sw se nw 17-29-4e ..... * 2317
Cowley County—
Shawver, Boeger 2, sw ne ne 21-30-4e ..... * 2871
Derby, David 3, ce½ sw nw 2-31-4e. 50 2968
Ellis County—
Lario, Simmer "C" 1, cw½ nw nw 12-11-17w ..... * 3530
Dickey, Husted 5, cn½ sw sw 18-11-17w 3000 3343
Cities Service, Collahan "B" 2, ne nw nw 25-11-17w 2735 3576
McCord 5, nw sw ne 26-11-17w.. * 3691
Ellsworth County—
Continental et al, John "A" 3, csl se ne nw 28-17-8w 823 3258
Greenwood County—
Brinegar et al, Hasty 1, se ne nw 17-28-11e 17 1234
Kingman County—
Skelly, Miles "D" 1, cwl sw se ne 19-27-10w .....¶50.2 4070
McPherson County—
Westgate-Greenland, Zietlow 1, ce½ sw ne 19-17-1w 2106 2668
Carey, Coons 1, cw½ sw sw 13-19-1w (PB 2917) ..... ¶3.0 3425
Derby, Lacquemont 2, nwc se 20-19-1w (OTD 3412) 65 3330
Transwestern, Peterson 3, ce½ sw sw 18-20-5w 3000 3324
Republic, Johnson 2 ,ce½ sw nw 19-20-5w 3000 3317
Reno County—
Olsen et al, Blake 9, sw ne sw 23-23-4w (OTD 3605) 95 3414
Rice County—
Continental, Ainsworth 5, ne nw se 24-18-8w 3000 3180
Atlantic et al, Brubaker 1, cw½ sw 35-19-8w ..... ¶8.8 3305
Bartlett, Houston Comm. 2, cs½ nw nw 19-20-10w 3000 3273
Rooks County—
Consumers Co-op, Beardmore 3, cw½ se ne 10-9-16w 2385 3218
Krueger, Tatkenhorst 2 "B," cs½ nw se 10-9-16w 3000 3228
Russell County—
Skelly, Opdycke 15, cs½ sw nw 32-14-13w 1195 2942
Mid-Continent, Shaffer 2, cn½ sw 35-14-13w ..... * 3192
Cities Service, Hickey 2, cw½ sw se 25-14-14w 525 3144
Major 1, ce½ ne se 5-15-12w..... 678 3208
Hartman et al, Harbaugh 9, cwl nw se sw 25-14-15w 3132 3180
Coralena, Bitter 2, cn½ nw nw 16-15-13w 2460 3088
Robertson et al, Radke 1, cs½ sw sw 18-15-14w ..... * 3442
Stafford County—
Champlin, Smith "A" 2, cw½ se ne 17-21-11w 168 3425
Landon et al, Equitable Life 3, ce½ nw ne 15-24-11w 1563 3826

Kentucky

Daviess County—
Creek Drilling, O'Flynn 3 ..... 10 1379
Riley & Smith, Baird 1 ..... * 1728
Henderson County—
R. M. Cooper, Fulton & Yates 1.... 35 2105
Jack Cox et al, Priest 1..... * 1509
Logan County—
A. A. Peard, Dardin 1..... * 1402
McLean County—
South Penn, Nall 11 ..... 12 1457
Muhlenberg County—
C. T. Judd, McKinney 1..... * 940
Ohio County—
W. E. Hupp et al, Livermore Timber Co. 2 ..... 20 1123
D. T. Boling, Hamilton 3 ..... * 967
United Pet., Miller 3 ..... * 329

South Louisiana

Bayou Blue—
T. G. Markley, Baiste 6..... 158 1577
Bay St. Elaine—
Jeff. Lk. Sul., Royalties 5..... * 1113
Texas, State B-5 ..... 325 7960
Chacahoula—
Sun, Dibert-Stark-Brown 9..... ¶4.5 6457
Charenton—
Failing, Viguerie 3 ..... * 1140
Dog Lake—
Texas, LL&E 12 ..... 209 7803
Eola—
Gulf, Mouliere 1 ..... * 6212
Fausse Point—
Sun, Planters 3..... * 1408
Kling & Walet 7 ..... * 1464
Grand Bay—
Gulf, GPLD 8-A 432 10,000
Golden Meadows—
Frankes, Hatcher 1 ..... 180 5491
LaPice—
Shell, Fed. Ld. Bk. 1 ..... 454 10,900
Leeville—
Texas, LL&E 76 ..... 268 8778
Potash—
Humble, OLB 47 ..... 672 8030
Sweet Lake—
Pure, Stanolind Fee 9 (wo) ..... * 6380
Ville Platte—
Continental, Tate 1 ..... 223 10,174
Vidrine 4-14 ..... 95 10,225
Calcasieu Parish—
Hamman Exploration, Hoffpauir 1, Bayou Chopique ..... * 9100
Cameron Parish—
Helis & Danciger, White-Mallar Bay 1 ..... * 9503
Jefferson Davis Parish—
Eastman, Fee 1, Jennings ..... * 2500
Orleans Parish—
W. T. Burton, State-Lk. Catherine 3 ..... * 9677
St. Charles Parish—
Texas, State 2, Lake Salvador, new sd 185 10,135
St. Martin Parish—
Shell, St. MPSB 1, West Lake Verrett, new sd 235 8974

North Louisiana

Bossier Parish (Wildcat)—
Ed De Armand et al, Eglin 1, 8-20n-13w ..... * 3002
Catahoula Parish (Wildcat)—
Sinclair Prairie, Peck 1, 39-10n-8e * 6023
Caddo Parish (Vivian-Pine Island)—
Mahan & Griffin, Daniels 1, 34-22n-16w 25 2455
Caddo Parish (Pine Island)—
Caddo Monarch Gas Co., Crystal Fee 1, 23-21n-16w ..... * 1576
E. E. Johnson, Feist 1, 32-21n-15w. 60 1550
Juan & McFatrick, Hobbs 4, 28-21n-15w 25 1548
S. Reele, Hardy 1, 32-21n-15w.... 35 1588
Magnolia, Doan-Thigpen 29, 6-20n-15w 20 1505
Doan-Thigpen 30, 6-20n-15w 35 1507
Midfield Oil Co., Muslow C-1, 5-20n-15w 25 1534
Clairborne Parish (Haynesville)—
Ohio Oil Gulf, Taylor 15, Acct. 1, 15-23n-8w ..... * 11,274
DeSoto Parish (Naborton-Bull Bayou)—
W. K. Williams, Scout et al 2, 19-12n-11w .....¶2.0 896
La Salle Parish (Olla)—
Placid Oil Co., Hopkins Unit 2, 24-10n-2e 200 2395
La. Cent. Lbr. Co. 55, 35-10n-2e.. 150 2423
La. Cent. Lbr. Co. 62, 2-9n-2e... 150 2450
La. Cent. Lbr. Co. 63, 2-9n-2e... 200 2460
La Salle Parish (Nebo-Jena)—
H. L. Hunt, Goodpine Lbr. Co. A-4, 9-7n-3e 300 3883
Ouachita Parish (Monroe)—
Carbons Cons, White 1, 34-19n-3e..¶5.5 2213
Interstate Nat. Gas Co., Fee 102, (in Ouachita River, T 19n-R 3e).¶4.0 2160
Fee 103 (in Ouachita River, T 19n-R 3e) .....¶3.0 2158
Sabine Parish (Converse)—
Jenkins & Myers, Mott Est. 1, 17-9n-13w 60 1962
Union Parish (Monroe)—
Nemours Corp., Haile 1, 14-21n-3e.¶2.5 2200

Michigan

Allegan County—
Lucas & Thornberry, Waterman 1, c n½ s½ s½ 13-3n-14w..... * 1640
Bell-Marks, Ter Har 1, nw sw se 4-4n-14w ..... * 1541
H. C. Nelson, Kroeze 3, sw se sw 9-4n-14w ..... * 1596
Gordon Oil Co., Koopman 5, ne ne nw 16-4n-14w 126 1493
Regal Dutch Pet. Co., Kroeze 2, se nw nw 16-4n-14w 85 1524
Lang & Lewis, Loew 1, sw sw sw 15-4n-13w ..... * 1608
Arenac County—
Socony-Vacuum, Dikos 1, c s½ ne se 16-18n-4e ..... * 2904
Barry County—
Sun Oil, Kidder 1, nw nw nw 8-3n-9w ..... * 5013
Gladwin County—
Sun Oil, Goodwin 1, se ne nw 36-17n-2w 308 3950
Gratiot County—
Wilson & Twin, Boyd 1, c nw 4-10n-2w ..... * 928
Isabella County—
Pure Oil, Wille 17, c s½ nw ne 4-14n-6w 75 3630
Allegan Pipe & Sup. Co., Freed 1, c s½ se se 33-13n-4w ..... * 3606
Cities Service, Unit El, nw se se 8-16n-3w .....¶3.5 1267
Kent County—
Jetter Dr. Co., Quiggle 1, sw se se 14-6n-10w ..... * 2175
Smith Pet. Co., Milan 1, c s½ sw se 28-7n-12w ..... * 1943
Midland County—
Carter Lease, Fee 6, nw sw se 18-13n-1w ..... * 4733
Muskegon County—
Robt. Lentz, Endelman 1, nw se ne 32-11n-15w .....¶0.17 1149
Sprenger Brothers, Mears 1, se se ne 28-11n-17w ..... * 2167
Ogemaw County—
Weber Oil Co., State 1, c w½ ne ne 25-24n-1e ..... * 3933
Osceola County—
Taggart Bros. Co., Cornell 55, sw se se 30-18n-10w .....¶7.5 1245
Ottawa County—
Daily Crude Oil Co., Powell 1, ne nw nw 5-7n-13w 24 1185
Van Buren County—
Smith Pet. Co., Erickson 1, sw sw se 21-1s-16w ..... * 1046

Mississippi

Yazoo County (Wildcats)—
Arcarea Reserve Co., Holmes 1, 22-12n-1e ..... * 5509
Edward DeLoach, Wilburn 1, 6-12n-1e ..... * 6020
Yazoo County (Tinsley Dome)—
Hassie Hunt, Milner 1, 6-10n-2w.. 250 5542
Slick-Urschel, Slick 12, 35-10n-3w. 300 4803
Union Prod. Co., Perry-Woodruff Unit 1, 13-10n-3w 375 4665
Childress 3, 19-10n-2w 500 4843

Missouri

Caldwell County—
Scott, Zimmerman 1, swc nw 30-55n-28w ..... * 387
Evans, Minger 1, swc nw 32-55n-28w * 370
Vanlinder 1, c ne se 26-55n-29w .. * 565
Platte County—
Missouri Valley O&G Co., Brown 4, sw nw se 12-51n-34w (PB 600)..¶0.2 845

United States Well Completions—*Continued*

Nebraska

Richardson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pawnee Royalty, Sandrock 2, ne se nw 20-1n-16e	800	2263
Sandrock 3, nw sw ne 20-1n-16e	800	2265
Sandrock 4, c s½ ne 20-1n-16e	800	2267
Sandrock 5, c 20-1n-16e	840	2266
Shaffer et al, Sandrock 1, ne sw nw 20-1n-16e (PB 2350)	643	2873
Skelly, Davidson 2, ne nw ne 20-1n-16e	250	2282
Wallraff 2, c sw se 20-1n-16e	960	2306
Campbell et al, Schock 2, c nw ne 29-1n-16e	528	2343

New Mexico

Eddy County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Barnsdall, Dodd 4-B, c nw ne 14-17-29e	104	2550
Worth Dr, Taylor 2, c nw sw 12-18-31e	35	3572

Eddie County (Wildcat)—

Tallmadge et al, State 1, sw sw ne 24-16-28e	*	2605

Lea County (Arrowhead)—

Continental, State 11-J-2 c ne nw 2-22s-36e	1584	3852

New York

Allegany County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shaner Oil Co., Green farm, Genesee	5	1430
Messer Oil Corp., Koehler farm, Clarksville	2	1432
Walter J. McEnroe, Hoover farm, Bolivar	7	1554
Messer Oil Corp., Miles farm, Bolivar	8	1431
N. V. V. Franchot, Reddy farm, Alma	6	1570
Dick Oil Co., Cameron farm, Bolivar	4	1429
Cameron farm, Bolivar	4	1410
Scio O. & G. Co., Fuller farm, Scio	5	862

Water Intake Wells—

Ebenezer Oil Co., Herrick farm, Bolivar	.	1335
Richardson Pet. Corp., Towner farm, Scio	.	1172
Bradley Prod. Corp., Duke farm, Alma	.	1465
Brown farm, Bolivar	.	1360
McElhenwood Oil Co., Horan farm, Andover	.	1457
L. H. Thornton, Agt., Fassett farm, Willing	.	1292
H. W. Patterson, Fuller farm, Amity	.	914
Rufus Scott, Scott farm, Bolivar	.	1534

Ohio

Athens County—

Company, Well and Location	Init. Prod. Bbls.	Depth
F. H. Gifford, Parmiter 4	2	420
Cooper et al, Ackley 2	¶ 0.8	1055
Orndoff, Wooley 3	¶0.05	1455
F. J. O'Mara, Luhrig Coal 1	¶0.05	1105
Jess Williams, Parmiter 1	*	365

Cuyahoga County—

L. F. McGrath, Buhl 2	¶1.26	2733

Fairfield County—

City Nat. Gas, Steiger 1	*	2084

Guernsey County—

Dave Ferguson et al, Ogg 1	*	1352

Holmes County—

Bell Bros., Badger 1	*	857

Jefferson County—

N. E. Ellis, Telfer 10	*	1395

Knox County—

Ohio Fuel Gas, Wolfe 1	¶0.9	2971

Lawrence County—

Pawnee Corp., Keeney 1	¶0.1	2670

Licking County—

Rutledge et al, Bay 1	¶1.3	2338
C. A. Davis et al, Weekley 1	¶0.21	2616

Lorain County—

Forest Oil Co., Wells 1	*	341

Medina County—

Marine Trust, Ross 9-A	5	455
Ross 26-A	5	475
Ross 11-O	I	442
R. C. Holmes et al, Hostetler 7-W	I	489
Hostetler 11-W	I	488
Aloerfer et al, Alderfer 1	*	480
Christman & Sawyer, Fusselman 6	5	414
Fusselman 13	5	442
Wm. Dempsey, Wallace 1	¶0.15	3442

Meigs County—

Shuster et al, Nelson 1	¶0.05	436

Monroe County—

Lumbatis et al, Denbow 1	*	1548

Morgan County—

Williams et al, Spurrier 38	¶0.02	1285

Muskingum County—

Sutton Bros., Bussemer 2	¶1.2	4200
Swingle et al, Stanberry 2	¶0.78	4107

Noble County—

Gerst & Co., Schott 1	5	546
Ohio Fuel Gas, Ankrom 3	¶0.12	1505

Perry County—

Palm Oil Co., Amerine 1	110	3410
Preston Oil Co., Amerine 1	40	3328
Guest 1	¶2.0	3275

Tuscarawas County—

East Ohio Gas, Strum 1	*	4901

Washington County—

Fairfield Gas Co., Mayhugh 1	¶0.55	1289
J. T. Hall et al, Hall 1	¶0.08	2088
Porter, Robinson 2	¶0.06	1397
McGinnus, McCurdy 1	*	1570

"I" indicates input well.

Oklahoma

Beckham County—

Westoak, Roles 1, c nw se 11-9n-25w	¶2.5	3502

Caddo County—

Martin et al, Walker 1, se sw nw se 3-5n-9w	335	3845
Pace, Prentice 1, ne nec sw 6-5n-9w	52	3471

Carter County—

Magnolia, Richards 81, c s½ s½ 31-3s-3w	83	1137
Kyle, Daugherty 2, sw se ne sw 17-4s-2w (OTD 2154)	40	2177
Batson, Walker 3, se sw nw ne 20-4s-2w	224	2003
Gibson & Jennings, Griffin 4, ne ne se se 20-4s-2w	365	2178
Mertens 4, se sw nw se 20-4s-2w	125	2021
Turner, Rose 1, sw swc 21-4s-2w	432	2197
Stearns 2, nw nw sw sw 21-4s-2w	480	2232
Shell, Tubbi 47, nw sw nw nw 24-4s-3w	*	555

Comanche County—

Stogner, Lowe 2, se se nw nw 7-1n-10w	*	610
Wynn, Meier 1, sw sw ne se 12-1n-11w	*	400
Smith, Williams 2, se se nw 26-2n-11w	*	263
Bybee, Gandy 1, se sw nw sw 35-2n-11w	*	765

Creek County—

Bryan, Ah-Sey 2, nwc ne 34-14n-7e	*	2945
Pure, Potoke 10, sec sw 5-17n-12e (OTD 1570)	2	1621
Glenn et al, Meritt 1, ne sw nw 26-18n-7e	25	1960

Grady County—

McCasland et al, Woods "B" 1, ne sw ne ne 17-3n-5w	75	2580

Jefferson County—

Beck, Scay 11, nw swc se 34-6s-5w	¶7.5	1534

Lincoln County—

Mason & Stuart, Crane 1, sw ne se 7-12n-5e	80	4242
Mid-States, Provaznik 1, sw se sw 33-12n-6e	576	3275
Wilcox O.&G. Co., Evans 2, se ne nw nw 21-14n-6e	55	3135

Logan County—

Mid-Continent, Dodson (East) 1, sec 1-17n-1w (OWPB)	121	5084

McClain County—

Patsy, Caldwell 1, ne nw ne 16-5n-3e (OWPB)	*	3705
James 2, nec 16-5n-3e (OTD 3600)	*	3800

McIntosh County—

McNutt et al, Life 1, sec sw 1-12n-16e	¶1.9	1485

Muskogee County—

Robinson, London 5, nec sw 17-13n-16e	36	2132
Jackson, Howard 1-A, c ne sw 7-15n-16e	8	1266

Noble County—

Sunray, Guthrie 2, sw ne sw 31-21n-2w	48	5462

Okfuskee County—

Droppleman, Dill "C" 3, nec se 34-12n-8e	200	3582
Shell, Curry 1, swc nw 35-12n-8e	1055	3594

Okmulgee County—

Swick, Wright 1-A, cn½ ne sw 22-14n-14e	2	433
Dow, Monday 2-C, nw se nw ne 33-15n-14e	5	815
Bradey, Banks 2, nec se 32-16n-11e	25	2032

Osage County—

Valley Osage, Blackmer 1-A, sw nw ne 22-20-9e	¶6.0	2246
Pure, 134, sw se nw 8-23n-8e (OWDD)	51	2450

Pontotoc County—

Magnolia, Metro, Life 8, sec 22-2n-7e (OTD 4319)	86	4336
Sinclair Prairie, Wooley "B" 5, sec sw 22-2n-7e (OTD 3576)	16	2705
Moore, Julius 1, nw se nw 6-4n-7e	*	1202
Pine, Jeeter 2, se sw sw 26-5n-4e (OTD 2658)	78	2466

Pottawatomie County—

Vinson, Fidler 1, sec 4-5n-5e	*	2795
Simpson-Fell, Hale 1, nwc ne 4-11n-6e	5	3319

Seminole County—

Culver & Shepherd, Willmott 1, se nw sw 3-5n-5e (OTD 2822)	50	2871
Sinclair Prairie, Harris 5, ne nw ne sw 14-7n-6e (OTD 3203)	*	3207
Cutdinger, Harjo 1, se ne sw 19-7n-8e	*	3129
Suppes et al, Pinehill 1-A, swc se 28-11n-8e	*	1975

Stephens County—

Burkheart et al, Fee 9, nec se 27-1s-5w	30	735

Tulsa County—

Continental, Butts 5, se se ne ne 35-22n-12e (OTD 1467)	*	1575

Wagoner County—

Minter, McClure 11, sw ne ne 7-18n-17e	3	285

Pennsylvania

BRADFORD DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
N. V. V. Franchot, Mgr., Tr., Campbell	3½	....
Messer Oil Corp., Look	5	....
Bel Oil Co., Fee	4	....
J. P. Kervin, Fee	4	....
Merry Bros., Berger	1	....
Pine Run Oil Co., Bing 130-1-2-3-4-6	5	....
Forest Oil Corp	1	....
Forest Pet. Corp.	1	....
Niagara Oil Corp., 3 wells	3	....
Bradford Tr. Co., 27 wells	27	....

WATER INTAKE WELLS

D. Y. M. Corp., Bing 466	.	....
Forest Oil Corp., 2 wells	.	....
Forest Pet. Corp., 3 wells	.	....
Niagara Oil Corp., 4 wells	.	....

NEW YORK-PENN GAS FIELD

Belmont Quad. Dr. Corp., Robert Clark 2	*	....

MIDDLE DISTRICT

W. B. F. E. Kapp, Miller	¼	....
Fryburg Motor Co., Davis	1	....
Exchange Bank & Tr. Co., Whieldon	1½	....

BUTLER-ARMSTRONG DISTRICT

Sipe Bros. et al, Sterling Hrs.	½	....

Southwest Pennsylvania

Armstrong County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Chestnut Ridge, Shirey 3	¶0.82	1418
Shelocta, Boyer 1	¶0.39	3145
Peoples Gas, Sowers 1	¶0.03	3501

Clarion County—

Squirrel Hill Gas, Fagley 1	¶0.17	2640
Climax Brick, McMaster 1	¶0.08	2560

Fayette County—

Duquesne, Moher 1	¶ 0.3	2386

Greene County—

Nat. Gas Co. of W. Va., Coffield 2	¶0.13	3220

Washington County—

Carnegie Nat. G. Co., Horn 2	¶0.03	3056

West Texas

Andrews County (Emma)—

Osage Dr., Univ. 5	3186	4286

Crane County (Sand Hills)—

Humble, Tubbs 45	2311	4400

Crane County (Waddell)—

Gulf, Henderson 24	5312	3550

Ector County (Foster)—

Atlantic, Johnson 3-J	963	4150
Broderick & Calvert, Bagley 3	875	4314
Sun, Witcher 4	1117	4065

Ector County (No Goldsmith)—

Grisham & Hunter, Cowden 1-C	89	4530

Gaines County (Seminole)—

Amerada, Riley 6	833	5230
Robertson 2	441	5250
H. W. Bass, Austin 3	429	5239
Magnolia & Atlantic, H&J 3-217	799	5335
H&J 13-219	477	5266

Gaines County (Wasson)—

Continental, Wasson 6-49	2164	5050

Hockley County (Slaughter)—

Devonian, Hudgens 2	2431	5022

Pecos County (White-Baker)—

Cardinal, White & Baker 1-F	¶17.25	1763

Pecos County (Shearer)—

W. H. Street, Fromme 4	234	1500

Presidio County (Wildcat)—

H. D. Wilcox et al, Jones-Cofield 2	*	2399

Scurry County (Sharon)—

G. D. Robinson, Treavy 1	*	500

Winkler County (Keystone)—

Std. of Texas, Baird 18-63	328	3350

Yoakum County (Wasson)—

Basin States Oil, Law & Fisher 2	778	5230
Don Danvers, Willard 6	905	5252
Shell, Dora Roberts 12	432	5205

East Texas

Joiner Area—

McCutchin, Thompson 7	400	3625
Vaughn, Thrush 13	550	3887

Kilgore Area—

Sinclair, King 25-B	1100	3481

Longview Area—

Cit. Serv., Aiken 23	450	3643
Philbro, Mathews 3	400	3642
Potters, Dickson 2	400	3570
Shell, Richey 39	1200	3660
Pet. Corp., Colburn 16	1250	3608

Anderson County (Cayuga)—

Stanolind, Fitts 1	*	4089

Freestone County (Wortham)—

McNeil, Poindexter 1	35	2999

Kaufman County (Wildcat)—

McGee, Rutland Svg Bnk 1	*	3114

McLennan County (Wildcat)—

Rush & Sanders, McBride 1	*	820

United States Well Completions—*Continued*

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Jackson County—		
Magnolia, West 105-A (West Ranch) opens new sd	1200	8552
West 106-A (West Ranch)	1100	6766
West 114-A (West Ranch)	1000	5582
Jim Wells County—		
Earl Callaway, Smith 1 (WC) ½ mi e prod at Ben Bolt, new sd	150	5600
Henshaw Bros., Boerner 1 (Henshaw)	¶7.0	5885
Magnolia, Schmidt 6 (Wade City)	500	4916
Tide Water, Natho 2 (Orange Grove)	600	5091
Live Oak County—		
James Patton Taylor, Verner 1 (WC) John Turner sur	*	1211
Nueces County—		
Bay-Tex Oil Corp., Union Central Life Ins. 5 (East Stratton)	650	6885
Humble, State-Flour Bluff 1-G (East Flour Bluff)	600	6785
Navarro Oil Co., Houser 4 (South Clara Driscoll)	*	6638
Fred W. Shield and Allen & Morris, Allen & Gallagher 1 (WC) sur 147, extends Shield fld 4700 ft n, new sd	¶5.0 & 150	7806
Southern Minerals Corp., Sellers 2 (Stratton)	450	6690
Texas Conservative Oil Co., Flinn 5-B (South Clara Driscoll)	250	6005

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Continental Oil, Driscoll, Jr., Est. 3-B (East Driscoll)	*	2839
Duval Oil Corp., Hoffman 9 (Hoffman)	350	2749
Gilcrease Oil Co., Salazar 1-B (WC) sur 3, extends Hoffman fld 1 mi sw	¶5.0 & 20	2634
Magnolia, D.C.R.C., 6 (190) (Cedro Hill)	27	1430
D.C.R.C., 7 (190) (Cedro Hill)	*	1620
D.C.R.C. 17 (58) (Lundell)	*	1666
Jim Hogg County—		
C. Andrade III, Martinez (Trevino) e-3 (Colorado)	450	2946
Humble, King Ranch-Colorado 23 (Colorado)	475	3027
Jay Simmons, Vela Pena 1 (WC) sur 579	*	3172
LaSalle County—		
H. R. Cullen and Trinity Pet. Corp., Wildenthal, Jr. B-1 (WC) sur 17	*	7808
Starr County—		
W. R. Davis Co., Slick Est. 37-B (Rincon)	500	4373
Slick Est. 38-B (Rincon)	450	4457
Sun Oil, Speer 2-C (Sun)	20	5000
Webb County—		
O. W. Killam, Bruni Est. 1 (WC) blk 2, Las Albercas gr	*	2729
Zapata County—		
Hagen & Stewart Dr. Co., Martinez 3 (WC) blk 84, El Grullo gr	*	1232

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Atascosa County—		
Bennett & Lipton, Franklin Ranch 1 (WC) A. Williams sur 950	*	1617
Bastrop County—		
Durbin Bond, Carroll 1 (WC) 3 mi w Red Rock	*	2831
Bexar County—		
H. A. Potter's Miller 1 (WC) sur 48, extends Somerset area n	35	1384
Zavalla County—		
R. E. McClung, Munger Ranch 1 (WC) sur 41	*	3009

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Brown County—		
McCallum & Forber, Carson 1	*	1700
Callahan County—		
R. W. Gray-R. C. Granbury, Gilliland 1	*	1876
Eastland County—		
Hickok-Prod, Wright-Harell 2	8	3645
Jones County—		
Humble, Graves 5	1284	2928
Shackelford County—		
J. Carson et al, Elliot 1	20	3640
J. B. Baker, Nail Jr., 1-C	*	1167
Fortex Oil, Newell 1	*	1437
Taylor County (Wildcat)—		
K. B. Nowels et al, Hardin-Simmons Univ.	*	2002

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Barbers Hill—		
Sun Smith 1 (wo)	26	5550
Bay City—		
Skelly, Moore 8	417	7495
Conroe—		
Normandie, Falvey 12 (wo)	485	5095
Dickinson—		
Humble, Jones 1 (wo)	16	8016
Dyersdale—		
Cockburn, Burkitt 3	358	4087
Esperson—		
General Crude, Davis 22	¶	9018
High Island—		
Stanolind, Smith A-6 (wo)	97	5640
Hillje—		
Texas, Peters 3	*	5275
Humble—		
Wilson, Brown 29	30	1802
Homes 2	79	1127
Hull—		
South, Palmer 1	203	3263
Joe's Lake—		
Republic, Hurd 46	416	7706
Louise—		
Pure, Houston 3	111	5155
Weaver 2 (wo)	22	5147
Magnet—		
Humble, Cockburn 26	130	5545
Manvel—		
Texas, Belcher 26 (wo)	56	5145
Old Ocean—		
Sun, Campbell 6	166	10,145
Pierce Junction—		
Gulf, Taylor 31 (wo)	320	4472
Port Neches—		
Texas, Stark 12	95	4564
South Bay City—		
Atlantic Glover 2	324	8211
South Liberty—		
Sun, Mitchell 60	18	2125
Thompsons—		
Gulf, Scanlan 5	810	7896
Wolters 20-B	221	5450
Wolters 5-B	73	5437
Tomball—		
Humble, Schultz B-1-4	33	5592
West Beaumont—		
Stanolind, Keith & Dowlen 13	300	5400
Chambers County—		
Humble, State 2-C-46, Fishers Reef	144	9005
Fort Bend County—		
Bahara-Renwar, Sugarland Ind. 2	*	5200
Matagorda County—		
Helmerich & Payne, Herman 1, Sugar Valley	*	9505

North Texas

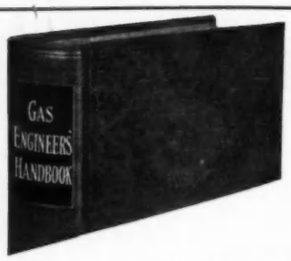
Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Deep Rock Oil & Christie, Finley 4	1292	4355
Dillard-White-Duncan, Nichols 6	1152	4400
Pet. Prod. Co., Anderson 3-C	1080	4420
Archer County—		
Cochran & Cain, Little 11-B	40	1375
Ray Horany, Phillips 2	*	1180
Geo. Kesterson, Herron 1	18	862
B. L. Ligon, White 10-D	*	1653
Shoppell Oil, Jackson 5-E	*	615
Archer County (Wildcat)—		
Young, Woody & Grace & Wood, Robertson 1	19	1405
Clay County (Hapgood)—		
E. C. Borwood et al, Hapgood 2	2355	5983
Clay County (Wildcat)—		
E. C. Norwood et al, Shipley 1 (DD fr. 5066)	*	6002
Clay County—		
Akin, Dimock & Costley, Saner 1	*	1214
Bridwell Oil, Hasell 6-A	480	4769
Johnson & Kouri, Taylor Ests., Elliott et al 3	3	279
Elliott et al 4	7	268
Elliott et al 1	9	1140
Elliott et al 2	10	1154
Clay County (Shell-Henderson)—		
Shell, Henderson 6	831	7621
Clay County (Halsell)—		
Bridwell Oil, Halsell 6-A	327	4769
Cooke County—		
Gill & Witherspoon, Wilson 4	*	1083
Metzner & McKee, Hess 1	*	799
Trumter Pet. Co., Stacey 13	19	769
Jack County—		
Steed, Cooper & Wilson, Stewart 2	283	2925
Three Bee Invest., Epperson 2	384	3113
Throckmorton County—		
A. L. Wasson et al, Odell 1	5	367
Odell 2	10	357
Odell 3	5	395
Wichita County (KMA)—		
High Point Oil, Burnett 2-B	576	4133
Hammon-Hanlon-Buchanan, Fassett & Tuttle 33	560	3995
Shell, Griffin 13	1088	3816
Texas Co., Waggoner Bros. 21-A	408	3815
Wichita County—		
Akin, Dimock & Costley, Edna Oats 2	9	1324
C. Conyers, Jennings 2	*	965
J. Farrell, Waggoner 51-D	8	815
Keener Oil, Burnett et al 21	80	1412
Geo. Proctor, Foster 3-B	*	903
Wichita County (Wildcat)—		
J. Story, Jr., Hefley et al 1	*	1605
Young County—		
Graham Roy, R. J. McCloud 5	4	896
McCloud 6	3	893
Rowan Dr, Sloan 2	826	3900
A. T. Strong, Eddleman Saddlery 1	515	4305
Target Dr, Cearley 1	¶2.13	3104
Wooten & Wilson, Horton 10	*	641
H. Zweifel, Pistole 3	1944	3895

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Magnolia, Fee (244) 19	537	3164
Texas Co., Moore 11	140	3130
Gray County—		
Shell, McConnell 5	112	3266
Warner Oil, Morse 3	101	2681
Hutchinson County—		
Kewanee, Lewis 48	350	3007
Phillips, Graham 2	*	3339
Jordan 10	142	3040
Texas Co., Pond 31	441	3070
Moore County—		
Canadian Riv, Masterson 5-"A"	¶24.8	3644
Shamrock, Sneed 61	¶20.0	3283

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Boone County—		
Pure, Federal Coal 87	¶1.24	2181
Braxton County—		
Pitts. & W. Va., Snodgrass 7728	¶0.17	2272
Cabel County—		
Barboursville Fuel Co., Browning 1	¶ 0.2	3322
Calhoun County—		
Hope Nat. Gas, Rothlisberger 1	25	1010
Clay County—		
South Penn, Stockley 116	2	1950
Gilmer County—		
Hope Nat. G., Wesson & Bennett 8514	¶0.8	1368
Roberts & Weekley, Stern 1	*	1497
Kanawha County—		
United Carbon, Milan 1	¶1.69	5163
Logan County—		
O. B. Cunningham, Justice 1	¶0.8	2440
Ritchie County—		
Pitts. & W. Va. Gas, Nutter 1	¶0.07	2200
Glen F. McBurney et al, Coplin 1	*	1920
Tyler County—		
MD O. & G. Co., Pierpont 2	*	1100
Wetzel County—		
Hope Nat. G. Hatfield 1	*	1015



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WILDCAT REPORT
New Starts and Completions

ARKANSAS

COMPLETION

Nevada County—Coker Oil Corp.'s Jones 1, ne se ne 2-11-21, abnd 1300 ft.

CALIFORNIA

FIRST REPORTS

Kern County—Texas Co.'s S. P. 47-15, sec 15-29-24, lcn, Buttonwillow area. Raymond D. Herzog's Marine 28, sec 26-25-18, rig, Devils Den area.

Santa Barbara County—Lester L. Pedersen's Catlin 3, sec 32-4-25, dr 50 ft, Carpinteria area.

Solano County—Richfield Oil Corp.'s Potrero Hills 3, sec 10-4-1, lcn, Potrero Hills area.

Ventura County—Texas Co.'s Montgomery 1, sec 13-2-22, lcn, Oxnard area.

COMPLETIONS

Fresno County—Texas Co.'s Everding 1, sec 24-17-25, Kreyenhagen 7900 ft, Eocene 8831 ft, abnd 10,307 ft in Eocene shale, Cantua Creek area.

San Luis Obispo County—Superior Oil Co.'s Tar Springs 1, sec 19-32-15, abnd 6500 ft in hard black shale, no test, Huasna area.

KANSAS

FIRST REPORTS

Pottawatomie County—Olson & McCole et al's Anderson 1, nw sw nw 1-8s-7e, dr.

Reno County—Cities Service's Crandall 1, nw sw ne 23-23-10w, lcn.

COMPLETIONS

Barton County—Continental's Borger 1, nw sw ne 33-16-14w, 4½ mi w Ainsworth pool, Topeka 2920 ft, Lansing 3246 ft, Sooy 3455 ft, Arbuckle 3495 ft, abnd 3518 ft.

Ellis County—Lario O&G et al's Patter "A" 1, c w½ nw sw 20-11-16w, 3½ mi ne of S Bemis pool, Anhydrite 1035 ft, Topeka 2815 ft, Base Kansas City 3325 ft, Sooy 3360 ft, Arbuckle 3560 ft, abnd 3566 ft.

Leavenworth County—Turner et al's Merritt 1, c nw ne 34-10-21e, 7 mi se Oskaloosa pool, abnd 20 ft.

McPherson County—Williams et al's Henne 1, swc ne 21-17-1w, 2 mi se Roxbury pool, Kansas City 2071 ft, Mississippi 2648 ft, so 2652-55 ft, pay 2658-61 ft, td 2661½ ft, 2000 gals acid, 495 bbls, new pool.

Phillips County—Gulf's Houghton 1, c s½ sw nw 10-4-19w, 10 mi nw Bow Creek pool, Anhydrite 1505 ft, Ft. Riley 2130 ft, Neva 2457 ft, Base Americus 2610 ft, Topeka 2967 ft, Base Oread 3191 ft, Oswego 3197 ft, Base Kansas City 3419 ft, Conglomerate 3516 ft, Arbuckle 3526 ft, abnd 3575 ft.

Rice County—Carlock et al's Karber 1, c w½ nw nw 7-19-10w, 1¼ mi e Rick pool, disc for East Rick pool, Arbuckle 3343 ft, td 3350 ft, 3000 gals acid, 280 bbls, 34-gr.

NORTH LOUISIANA

FIRST REPORTS

Bienville Parish—R. W. Burnett's Waites 1, se sw 4-15n-10w, rig.

Caldwell Parish—Gholson & Hodge's La. Cent. Lbr. Co. 1, nw ne 35-12n-3e, rig.

La Salle Parish—Hunter Co.'s Pipes 1, sw se se 18-8n-3e, mat.

Winn Parish—Atlantic Ref. Co.'s Goodpine D-1, c sw ne 17-10n-2w, dr 1400 ft.

COMPLETIONS

Bossier Parish—Ed De Armand et al's Eglin 1, sw sw 8-20n-13w, abnd 3902 ft.

Catahoula Parish—Sinclair-Prairie's Peck 1, Irregular Sec. 39-10n-8e, abnd 6023 ft.

SOUTH LOUISIANA

FIRST REPORT

Terrebonne Parish—Louisiana Land & Explor. Co.'s State-Lake Points Au Fer 1, sec 3-21s-11e, 2000 ft sw U.S.C.G. station monument, lcn.

COMPLETIONS

Calcasieu Parish—Hamman Explor. Co.'s Hoffpauir 1, Bayou Chopique area, abnd 9100 ft.

Cameron Parish — Helis and Danciger's White-Mallard Bay Land Co. 1, Grand Lake, sec 23-13s-3w, electrolog 7500 ft, abnd 9503 ft.

Jefferson Davis Parish—Eastman's Fee 1, sec 33-9s-2w, city limits Jennings, abnd 2500 ft.

Orleans Parish—W. T. Burton's State-Lk Catherine 3, 5100 ft n L&N 1 well, abnd 9677 ft.

St. Marin Parish—Shell's St. Martin Parish School Board 1, new sd West Lake Verrett fld, sec 16-14s-12e, flwd 235 bbls dly, no water, 12/64-in ch, perf 7468-82 ft, tbg/csg pressure 750/1625 lbs.

MICHIGAN

FIRST REPORTS

Allegan County—Reeves Oil Co.'s Miner 1, ne ne ne 20-2n-12w, dr.

Muskegon County—Welsh Oil Co.'s Cussen 1, sw sw nw 5-12n-16w, rig.

Midland County—C. L. Maguire, Inc.'s Cross 1, c n½ nw ne 19-21n-3w, rig.

Ogemaw County—Gulf's Garber 1, c w½ sw sw 8-24n-1e, dr.

Roscommon County—Eugene Hilliard's State 1, c n½ nw ne 19-21n-3w, rig.

COMPLETIONS

Allegan County—Lucas & Thornberry's Waterman 1, c n½ s½ s½ 13-3n-14w, Traverse 1580 ft, abnd 1640 ft, Bell-Marks, Inc.'s Ter Har 1, nw sw se 4-4n-14w, Traverse 1474 ft, abnd 1541 ft.

Arenac County—Socony-Vacuum's Dikos 1, c s½ ne se 16-18n-4e, Dundee 2724 ft, abnd 2904 ft.

Barry County—Sun's Kidder 1, nw nw nw 8-3n-9w, Traverse 1836 ft, Dundee 2098 ft, Monroe 2135 ft, Niagaran 3660 ft, so 3674-84 ft, Trenton 4387 ft, Base Trenton 4953 ft, St. Peters sand 4960 ft, so 4960-61 ft, Knox dolomite 4975 ft, 500 ft water at 4991 ft, abnd 5013 ft.

Isabella County—Allegan Pipe & Sup. Co.'s Freed 1, c s½ se se 33-13n-4w, Dundee 3585 ft, abnd 3606 ft.

Kent County—Jetter Dr. Co.'s Quiggle 1, sw se sw 14-6n-10w, Traverse 2684 ft, abnd 2175 ft.

Midland County—Carter Lease, Inc.'s Fee 6, nw sw se 18-13n-1w, Sylvania 4583 ft, abnd 4733 ft, owdd.

Muskegon County—Sprenger Bros' Mears

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1, se se ne 28-11n-17w, Traverse 1744 ft, Dundee 2141 ft, abnd 2167 ft.

Ogemaw County—Weber Oil Co.'s State 1, c w½ ne ne 25-24n-1e, Dundee 2811 ft, Monroe 3915 ft, so 3921 ft, abnd 3966 ft.

Osceola County—Taggart Bros. Co.'s Cornell 55, sw se se 30-18n-10w, Stray 1237 ft, td 1245½ ft, 7,500,000 ft gas, new fld.

Ottawa County—Daily Crude Oil Co.'s Powell 1, ne nw nw 5-7n-13w, Berea 1170 ft, td 1185 ft, shot, pump 24 bbls, new fld.

Van Buren County—Smith Pet. Co.'s Erickson 1, sw sw se 21-1s-16w, Traverse 1027 ft, abnd 1046 ft.

OKLAHOMA

FIRST REPORTS

Cotton County—Stewart et al's Emery 1, c ne ne 30-3s-12w, dr.

Muskogee County—Feltz & Hyde's Moore 1, nw se se 4-14n-17e, mach.

Logan County—I.T.I.O. Co.'s Cronkite 1, nec nw 22-15n-4w, mirt.

Okfuskee County—Fain-Porter Dr. Co.'s Castle 1, ne sw se 36-13n-8e, rig. Henry Oil Co.'s Dudgion 1, ne sw se 36-12n-9e, dr.

Payne County—Starr O. & G. Co.'s State 1, c w½ sw sw 16-20n-2e, rig.

Pontotoc County—Heintzelman et al's Crawford 1, nec nw 12-4n-6e, dr.

Seminole County—Alma Oil Co.'s Borden 1, ne se nw 4-8n-8e, rig. Hilton Phillips et al's Thorn 1, nw ne ne 3-7n-5e, rig. Miller et al's Parsons 1, swc nw 29-11n-6e, rig.

Stephens County—Gulf's Krieger 1, c e½ ne sw 3-2n-5w, lcn.

COMPLETIONS

Lincoln County—Mason & Stuart's Crane 1, sw ne se 7-12n-5e, 3 mi w Wilzetta pool, Lower Skinner 4220 ft, shot 30 qts 4229-42 ft, td 4242 ft, 81 bbls, new fld.

McIntosh County—McNutt & Young's Life 1, sec sw 1-12n-16e, ¾-mi n extension to gas area, Booch sd 1473-85 ft, 1,930,000 ft gas.

Noble County—Frank & Ellis' Strasky 1, swc nw 35-24n-1w, 3 mi e of S. Tonkawa pool, temp abnd 2260 ft.

Payne County—H & H Oils et al's Linsemeyer 1, sec sw 3-18n-4e, 2 mi s Ingalls pool, Oswego 3220-3320 ft, Misener 3930 ft, temp abnd 3956 ft, fsg 3420 ft.

Pontotoc County—Catlett et al's James 1, nwc ne 19-5n-4e, 3 mi e Byars pool, Viola 2595 ft, Trenton 2615 ft, Bromide Dense 2806 ft, Wilcox 2906 ft, abnd 2920 ft.

Wagoner County—Jordan et al's Meriwether 1, nec 16-18n-17e, ¾-mi n extension of McCraken oil pool, Mississippi 554 ft, Tiner 887 ft, td 903 ft in sd, 1,200,000 ft gas.

NORTH TEXAS

FIRST REPORTS

Clay County—N. H. Martin & Son's Brannan 1, K. McKenzie sur, abst A-238, mim for 1350 ft test.

Jack County—O. J. Perrin's Brumbelow 1, H. C. Ayers abst 4, rur for 3500-ft test.

Young County—Dale Dublin et al's Edwards 1, sec 1479, TE&L sur, lcn for 950-ft test. Kimmel Lee & Co.'s Campbell 1-A, e½ n½ s½ sec 1371, TE&L sur, lcn for 1100-ft test.

COMPLETIONS

Archer County—Young, Woody and Grace & Wood's Robertson 1, sec 14, L. Lewellyn sur, abst 256, 19 bbls, 1405 ft.

Clay County—E. C. Norwood et al's Shipley 1, (DD from 5066 ft), blk 29, Madison CSL sur, abst 302, Bend 5841 ft, Ellenburger 5930 ft, abnd 6002 ft.

Wichita County—J. Story, Jr.'s Hefley et al's 1, sec 2, BB&C sur, abst 466, abnd 1605 ft.

WEST CENTRAL TEXAS

COMPLETIONS

Taylor County—K. B. Nowels et al's Hardin-Simmons University 1, nw¼, sec 36, LAL sur, abnd 2202 ft.

WEST TEXAS

FIRST REPORT

Pecos County—Magnolia's Karkey Hrs 1, sec 4½-3-H&TC sur, Imperial area, Ordovician test, pits.

COMPLETION

Presidio County—H. D. Wilcox et al's Jones-Cofield 2, s½ H&TC, sec 308, blk 4, elev 4403 ft, abnd 2399 ft.

EAST TEXAS

FIRST REPORTS

Limestone County—Hardon & Amis' Hammond 1, J. Folk sur, 1½ mi nw Kossier, 40-ac tr, 6100-ft test.

Marion County—J. D. Pearsons' Jackson 1, Alexander Albright sur, rig.

Wood County—Jackson & Rotondi's Cobb 1, Geo. Brewer sur, Hawkins townsite, blk 5, lcn.

COMPLETIONS

Bowie County—Lee Timberlake et al's Smith 1, Hill sur, sg 2750-83 ft, abnd 3035 ft.

Kaufman County—W. S. McGee's Rutland Saving Bank 1, J. Baker sur, abnd 3114 ft.

McClennan County—Rush & Sanders' McBride 1, 13 mi ne Waco, A. R. Valdez sur, 223-ac tr, abnd 820 ft.

SOUTH TEXAS

FIRST REPORTS

Brooks County—La Gloria Operators Committee's Arguellex 1, 4765.37-ac tr, lot 28, blk 10, W. W. and Harriett R. Jacobs La Gloria Townsite subd, 4800 ft sse Magnolia's Maun 1, lcn for 7400-ft test.

Calhoun County—McSpadden Co.'s Clark et al 1, 1500-ac tr, Thomas Henessee sur, ab 73, ne Coloma Creek, 9 mi s Port Lavaca, contract to Tideman & Franklin for 8000-ft test, lcn.

Dimmitt County—Producers Corp. of Nevada's McKnight-Bennett 1, GWT and P sur 653, 5 mi w Carrizo Springs, contract to W. G. Walton for 3500-ft test, mir.

Duval County—Jack Giblin and Gus Tsesmelis' Holzaphel 1, sur 178, blk 9, subd of 1280-ac tr, covering surs 42 and 178, 18 mi nw Freer, lcn for 1200-ft test.

Guadalupe County—E. E. Hillje's Kopp 1, s Elm Creek fld, contract to Bryan Patterson, dr 220 ft.

Jackson County—Humble's Egg 1, B. J. White sur, n LaWard, lcn.

Jim Hogg County—Jay Simmons and V. G. Schimmel's Guitierrez 1, 40-ac, blk 2, sur 144, 6 mi sw Randado, lcn for 3000-ft test.

Jim Wells County—La Gloria Operators Committee's Alby 1, 80-ac tr, lot 2, blk 9, Ragland and Herring La Gloria Townsite subd, 1775 ft w RR and 5910 ft e Magnolia's Maun 1, lcn for 7400-ft test.

Webb County—Smith & Storey, Inc.'s Brodie 1, 40-ac blk, sur 1246, 5 mi n Aguilares, lcn for 2500-ft test.

COMPLETIONS

Atascosa County—Bennett & Lipton's Franklin Ranch 1, A. Williams sur 950, abnd 1617 ft.

Bastrop County—Durbin Bond's Carroll 1, 166-ac tr, Freeman Wilkinson sur, 3 mi w Red Rock, 3 mi n North Dale fld, abnd 2831 ft, contracted by R. B. Muckleroy.

Bexar County—H. A. Potter's Miller 1, n 50-ac tr, Francisco Rolen League and Labor sur 48, 17 mi sw San Antonio, 1½ mi n Somerset, td 1384 ft, est 35 bbls pump, extends Somerset n, contracted by Arthur Coyle.

Duval County—Gilcrease Oil Co.'s Salazar 1-B, 40-ac "B" lse, C. Alanis sur 3, 1 mi sw Hoffman fld, td 2634 ft, est 500,000 ft gas and 20 bbls, ⅜-in ch, 750 lbs tp, 800 lbs cp, perf 2532½-34 ft, extends Hoffman fld 1 mi sw, contracted by Bancroft Dr. Co.

Jackson County—Magnolia's West 165-A, 5750 ft sw Menefee Bayou, 11.582-ac tr, Ramon Musquez gr, 933 ft se No. 34, 933 ft ne No. 28, West Ranch fld, td 8552 ft, comp 612 bbls, ¼-in ch, 1090 lbs tp, 1150 lbs cp, perf 6104-10 ft, new sd.

Jim Hogg County—Jay Simmons' Pena 1, s½ blk 8, M. W. White subd, sur 579, sh 3, El Peyote gr, 17 mi sw Hebbronville, 1250 ft se discovery, Patal area, abnd 3172 ft.

Jim Wells County—Earl Gallaway's Smith 1, e 100 ac of n 244 ac of 488.25-ac tr, sh 3, "La Trinidad" Santos Moreno gr, ½-mi e prod at Ben Bolt, td 5600 ft, est 150 bbls on gas lift, new sd, contracted by Henderson Coquat.

LaSalle County—H. R. Cullen and Trinity Pet. Corp.'s Wildenthal B-1, 80-ac tr, S. A. and M. G. R.R. sur 17, 2 mi sw Cotulla, 1 mi sw Cullens 1, abnd 7808 ft, contracted by Al Buchanan.

Live Oak County—James Patton Taylor's Verner 1, 1182-ac tr, John Turner sur, 2½ mi se Calliham, abnd 1211 ft, contracted by Luling O&G Co.

Nueces County—Fred W. Shield and Allen & Morris' Allen & Gallagher 1, 137-ac lse, S and K sur 147, nw offset Lacey's Lewis 1, abnd in 1934 at 5008 ft, Southern Minerals Corp. farmout, 4700 ft n Shield fld, td 7806 ft, est 75 bbls dist, ¼-in ch, 2400 lbs tp, 2525 lbs cp, perf 6970-74 ft, extends Shield fld 4700 ft n and opens new sd, contracted by Allen & Morris. Texas Conservative Oil Co.'s Flinn 5-B, e½ sec 110, George H. Paul's subd, Robert Driscoll Ranch, 660 ft n No. 4-B, South Clara Driscoll fld, td 6005 ft, est 125 bbls ¼-in ch, perf 5826-30 ft, new sd, contracted by Henderson Coquat.

Webb County—O. W. Killam's Bruni 1, 160-ac blk, blk 2, George Brown O. & G. subd Las Albercas gr, 12 mi se Mirando City, abnd 2729 ft.

Zapata County—Hagen & Stewart Dr. Co.'s Martinez 3, blk 84, McCullough subd, El Grullo gr, 3 mi n Charco Redondo fld, temp abnd 1232 ft.

Zavalla County—R. E. McClung's Munger Ranch 1, se¼ of sw¼, I&GN sur 41, 12 mi nw Crystal City, abnd 3009 ft, contracted by L. A. Douglas.

TEXAS GULF COAST

FIRST REPORT

Washington County—John Deering's Buck 1, Jas Lynch Lge, 3 mi sw Old Washington, 200-ac tr, lcn 7000-ft test.

COMPLETIONS

Chambers County—Humble's State 2-C-46, disc Fishers Reef fld, 7 mi ne Cedar Point, 11 mi sw Anahuac, Trinity Bay, Frio 7565 ft, perf Hackberry 8961-63 ft, flwd 6 bbl hr, 32.6-gr, no water, ⅛-in ch, tbg pressure 1700 lbs, gas/oil ratio 8351/1 odor oil 7630-38 ft, oil sand 8955-75 ft.

Fort Bend County—S. Bashara and Renwar Oil Co.'s Sugarland Ind. 1, north flank Sugarland fld, Wm. Stafford ½ lge, abnd 5500 ft, salt 5200 ft.

Matagorda County—Helmeric & Payne's Herman 1, Sugar Valley area, oil odor 8073-91 ft, electrolog 9505 ft, pb 7336 ft, abnd.

MEN IN THE INDUSTRY'S NEWS

MARCEL SCHLUMBERGER, jointly with his brother Conrad, who died in 1936, have been awarded the Anthony F. Lucas Gold Medal for 1941 by the American Institute of Mining & Metallurgical Engineers in recognition of "distinguished achievement in improving the technique and practice of finding and producing petroleum."

The award, made on recommendation of a special committee of 16 leaders in the oil industry, cited pioneer work of the brothers in developing methods for electric logging of oil wells.

Conrad Schlumberger first engaged in electrical subsurface exploration in France in 1910, when he was professor at the School of Mines in Paris. Ten years later, Marcel Schlumberger, who had been engaged in mining and other engineering activities, joined his brother, and they cooperated closely on development of their methods after that time. Their methods were later introduced in the United States and other countries, and now are in general use throughout the world.

MRS. ALICE SHUTT BRADBURY, mother of James Bradbury, Mene Grande Oil Company jefe at Maracaibo, will fly via Pan-American Clipper from Miami to Maracaibo next week. Eighty-four years old, Mrs. Bradbury is the oldest in years and the youngest in spirit to fly a Pan-Am Clipper, according to officials of the line. She lives with her son in Maracaibo, and came to the United States several weeks ago on a vacation.

H. B. STENZEL, bureau of economic geology, University of Texas, read a paper on "Sedimentation Problems of the Texas Coast Eocene" at the meeting of the South Texas Geological Society in Corpus Christi, on November 15.

C. E. HOWELL, formerly at Ponca City for Continental Oil Company, has been transferred to Mt. Carmel, Illinois, as assistant superintendent of the Illinois-Indiana district.

EDWARD M. BORGER, general counsel for The Peoples Natural Gas Company, Pittsburgh, has been named president of the company, succeeding J. French Robinson, whose resignation to head East Ohio Gas Company, Cleveland, was announced a week ago. Borger was employed as an attorney for The Peoples Natural Gas Company in 1922, following his graduation from Duquesne University. Since 1935, he had been general counsel for the company and for Hope Natural Gas Company, New York State Natural Gas Corporation and affiliated companies.

PHIL SHANNON, manager of Tropocal Oil Company at En Centro and Barranca Bermeja, Colombia, is in the United States on his vacation. He attended the API meeting in Chicago. Accompanied by Mrs. Shannon, he saw the Princeton-Army game at Princeton Saturday. Phil, Jr., is a senior at Princeton.

JOSHUA S. COSDEN, 59, president of Cosco Oil Company and Cosco Pipe Line Company, died November 17 on a train while traveling from Palm Springs, California, to El Paso, Texas.

Cosden came to Oklahoma from Baltimore, where he was a drug clerk, and obtained his first fortune as a wildcatter. During the peak of his career, his personal holdings could have been turned into $25,000,000 cash within 24 hours, while their paper value were estimated at twice that figure. His Cosden & Company passed from his control in 1926 to become Mid-Continent Petroleum Corporation. Two years later, with a stake of $3,000,000 furnished by Eastern friends, he went to Fort Worth to establish Cosden Oil Company. This company was credited with a paper value of $15,000,000, but in 1930, while Cosden was ill at his Florida home, cash was lacking for current debts and a receiver was appointed. He re-entered the oil fields in 1931 with Cosden Petroleum Corporation, only to lose control in 1938.

TERRY DUCE is now located in San Francisco where he is vice president of the California Arabian Standard Oil Company, a corporation jointly owned by the Standard Oil Company of California and The Texas Corporation.

J. G. DYER, vice president in charge of production for Continental Oil Company, Ponca City, headed a party of company officials who last week visited recently purchased properties in the Rincon field, Starr County, Texas. The group included Fred Waltermire, Gulf Coast drilling superintendent, and A. C. Wilkerson, of the company's pipe-line division.

CHASE E. SUTTON, division manager for The Pure Oil Company, has been named chairman of the election committee for the Houston Chamber of Commerce.

R. J. NELSON, Mene Grande Oil Company, Cabimas, Venezuela, whose nick name is "Dago" and who is reputed the best story teller in Venezuela, is vacationing in and around Houston.

ROBERT H. ROBIE, Shell Oil Company, San Antonio, last week discussed "The Wilcox of Southwest Texas" before the Houston Geological Society.

JOHN H. WALKER, Beaumont, has been named salesman in the Dallas territory for P&H welders and electrodes of Harnishfeger Corporation, Milwaukee.

JOHN R. SUMAN, vice president of Humble Oil & Refining Company, Houston, last week was named president of the American Institute of Mining & Metallurgical Engineers. He will assume his duties at the organization's annual meeting in February, 1941.

J. Terry Duce, vice president of California Arabian Standard Oil Company, San Francisco, was one of four new directors named.

Born in Daleville, Indiana, April 9, 1890, Suman attended the University of Southern California and the University of California, College of Mining, which granted him a B. S. degree in 1912. Employed by Rio Bravo Oil Company in 1912 as assistant geologist, he later was made general manager, was technical superintendent for Roxana Petroleum Corporation, general manager of Texas operations for Associated Oil Company of California, and in 1927 became connected with Humble Oil & Refining Company. He was made vice president in charge of production for the company in 1933. He is an active participant in affairs of the American Association of Petroleum Geologists, American Petroleum Institute, and Mid-Continent Oil & Gas Association.

HENRY RICHARDSON, 52, Texas operator, died at his home at Alpine, November 14. He was president of Reliance Oil & Royalty Company until about two years ago, when the partnership of Reynolds & Richardson was formed to take over the company's properties. On October 1, this year, Reynolds & Richardson turned their properties to Hickok & Reynolds, Richardson retaining an interest. He had moved to Alpine three years ago due to failing health.

R. S. HUFFMAN, safety director for Oklahoma Natural Gas Company, has been appointed Oklahoma state representative for the national committee for the conservation of manpower in defense industries, by C. A. Miller, regional director in Houston.

E. P. HAYES, petroleum engineer for The Texas Company, Houston, has been named program committee chairman for the spring meeting of the Southeastern District, American Petroleum Institute's Division of Production, scheduled for February 27-28 at Shreveport. Serving with Hayes will be S. E. Buckley, Humble Oil & Refining Company, Houston; C. B. Carpenter, United States Bureau of Mines, Dallas; Harold Decker, Seaboard Oil Company

EDWARD
6000-LB. O.W.G.
VALVES

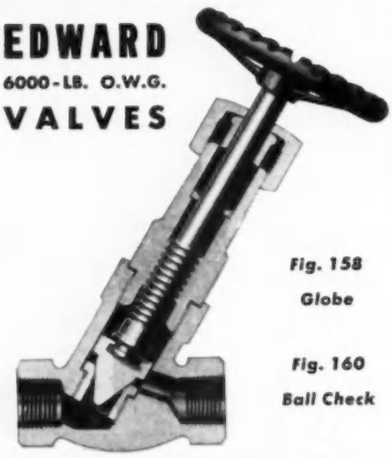

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Fig. 160
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MEN IN THE INDUSTRY'S NEWS

of Delaware, Corpus Christi; G. H. Fancher, University of Texas, Austin; T. W. Johnson, Union Producing Company, Shreveport; Edgar Kraus, The Atlantic Refining Company, Carlsbad, New Mexico; E. B. Miller, Jr., Tide Water Associated Oil Company, Kilgore, and R. O. VanFleet, Al Buchanan Drilling Company, Freer, Texas.

WALTER KEEFSE and wife are returning this week to Venezuela where he is superintendent to Maintenance for Mene Grande Oil Company. They are going via Grace line.

COE F. DIX, 57, accounting department of Oklahoma Pipe Line Company, Tulsa, died November 14 at his home. Coe had been with the company 16 years, and associated with the Standard organization 31 years.

TOM HAMILTON, sales engineer for Mid-Continent Pump Company, addressed the Seminole chapter of the American Petroleum Institute November 18 on "Bottom Hole Pumps."

R. P. COATS, Inez Coats and Edward J. Kubat, all of Oklahoma City, have organized Oakwood Drilling Company.

WALTER LEONARD is president of Monarch Development Company, recently organized to drill several gas tests in Michigan. John Bruun is vice president, and Fred Loveday is general manager.

JOE RODRIGUEZ with the Mene Grande staff at Maracaibo, who has been in the United States on vacation, returned during the past week to Venezuela.

B. M. NOWERY, vice president of Union Producing Company, is now located in the company's general offices in Shreveport, transferring there from Houston, Texas.

WORTH B. HURT, field geologist with Magnolia Petroleum Company, has been transferred to Sulphur Springs, Texas, from Meridian, Mississippi.

WARREN H. WYNN, now in the Tulsa office of the Sinclair Prairie Oil Company, as geologist, was transferred from a similar post at Wheeling, West Virginia.

W. B. WEEKS, geologist for Phillips Petroleum Company, addressed the Tulsa Geological Society last week on "Geology of the Schuler Field, Union County, Arkansas."

S. M. SHELTON, supervising engineer Mississippi Valley Experiment Station, United States Bureau of Mines, Rolla, Missouri, discussed "Mineral Industries and National Defense" before the Engineers Club of Tulsa November 18.

SAM SITRIN, Morris Sitrin and Sadie L. Sitrin, all of Tulsa, last week organized Orchid Petroleum Company as an Oklahoma corporation.

J. L. MATHIEU, of Schlumberger Well Surveying Corporation, Houston, has returned to the United States after an extended vacation in France. He sailed from New York in the summer of 1939 via clipper plane, and recalls that the trip to Europe required only 24 hours, but that the return voyage via Africa took approximately three months.

DR. W. D. COOLIDGE and Stuart M. Crocker have been named vice presidents of General Electric Company.

Coolidge will continue as director of the General Electric Research Laboratory in Schenectady, New York. Crocker will relinquish his duties as manager of the company's air conditioning and commercial refrigeration department at Bloomfield, New Jersey, to make his headquarters in New York City where he will cooperate with and be assisted by all commercial departments.

A. H. RICHARDSON, 52, retired West Central Texas oil operator, died November 15 at Alpine, Texas, where he had engaged in ranch operations the past 6 years. He was associated with Harry Reynolds and the late Tom E. Cranfill in the forming of Cranfill-Reynolds Company, which later became General Crude Oil Company, with headquarters at Houston.

JOHN McCAMMON and A. H. Wadsworth, graduate students at the University of Texas, presented papers on "Isopachus Map of the Austin Formation" and "A Study of the Colorado River Delta of Texas," respectively, at a meeting of the Houston Geological Society on November 12.

C. C. HUTCHINGS, former scout for Skelly Oil Company at Ardmore and Shawnee, Oklahoma, is now operating independently with headquarters at Evansville, Indiana.

W. C. BUCHANAN, president of Globe Steel Tubes Company, Milwaukee, has been elected a member of the board of directors of Allis-Chalmers Manufacturing Company, Milwaukee.

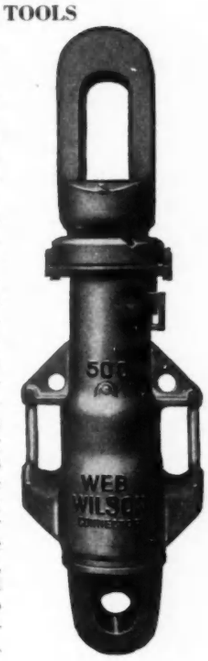
West-Central Texas Group Meets December 2

The ninth annual meeting of West-Central Texas Oil and Gas Association will be held in Abilene, December 2, not on December 9, as orginally announced.

President J. A. Clark and the program committee, headed by Malcolm Meek, Abilene, have a complete schedule for the day. An open forum will be held during the afternoon, with a banquet and entertainment to close the day.

NOTES FOR THE Equipment Buyer and User

Rotary Connector
WEB WILSON OIL TOOLS



Rotary connectors, with 100- and 500-ton ratings, have been announced by Web Wilson Oil Tools, Huntington Park, California.

The connectors feature an oil bath in which the plunger and bearing operate, designed to insure perfect lubrication of the bearing and a cushion for the spring action; a locking device which, when locked in drilling position, allows picking up a single from the pipe rack; a double roller bearing to provide ease of rotation, and an improved swivel adaptor to provide convenience and economy.

Pumping Unit
OIL WELL SUPPLY COMPANY

Two new single-crank pumping units designed for medium-duty service have been announced by Oil Well Supply Company, Dallas. Designated Models SC-12 and SC-17, they are identical except for capacities and ratios of reduction gears.

A. P. I. polished-rod load capacity is 10,000 pounds, and available stroke lengths are 22, 32 and 42 inches. The D-12 double-reduction gear of the SC-12 unit has a 31.9/1 ratio and an A. P. I. peak torque capacity of 58,000 inch-pounds at 20 strokes per minute, while the D-17 reduction gear of the SC-17 unit has a 32.15/1 ratio and an A. P. I. peak torque capacity of 82,000 inch-pounds at 20 strokes per minute.

Both reduction gears comprise ribbed, rigid, cast semi-steel cases with single-helical, heat-treated, forged-steel gears and pinions. The shafts are also heat-treated, and are mounted in heavy-duty, shim-adjustable, tapered roller bearings. Pinions are integral with their shafts. High-speed and crank shafts are equally extended, and both reduction gears are designed for full-capacity output from either crank-shaft extension, thus being especially suitable for back-crank pumping. A quick-acting brake with remote control operates on a drum at one end of the high-speed shaft. Gear ratios are adapted to drives from high-speed prime movers, as well as engines of the medium-speed range.

Frames, either short or extended, are of arc-welded structural steel with four-leg, derrick-type Samson posts. Both arc-type and rubber-cushioned, oilbath, link-type hangers are available. Beam counterbalancing by means of plates is standard, but crank weights can also be furnished where rotary counterbalancing is desired. When equipped with counterbalances, the crank clears the floor. All bearings are enclosed in weatherproof and oil-tight housings. The saddle bearings are oilbath, and the crank-pin bearing and upper-pitman bearing are grease lubricated.

Changing stroke lengths of either unit is facilitated by self-aligning, spherical roller bearings on the crank pin combined with a universal bearing arrangement at the top of the pitman. It is necessary to remove the crank-pin nut and withdraw the pin, and no further dismantling is required.

Jacks

Templeton, Kenly & Company, 1020 South Central Avenue, Chicago, has issued a 60-page catalog designated No. 40 and of a size that will fit into the vest pocket, describing construction, application and giving specifications for more than 300 sizes and types of the company's Simplex jacks. It covers automatic raising and lowering jacks, screw jacks, journal jacks, geared jacks and specialized jacks for the oil and other industries.

Flow Meters

The Brown Instrument Company, Wayne & Roberts Avenues, Philadelphia, has issued Catalog 2007 describing its complete line of electric flow meters for measurement and control of oil, steam, air, chemicals, water and other fluids. Schematic diagrams of meter bodies and piping layouts are shown, and design features, such as rectangular case, automatic recording planimeter pen and interrelated range tubes, are shown.

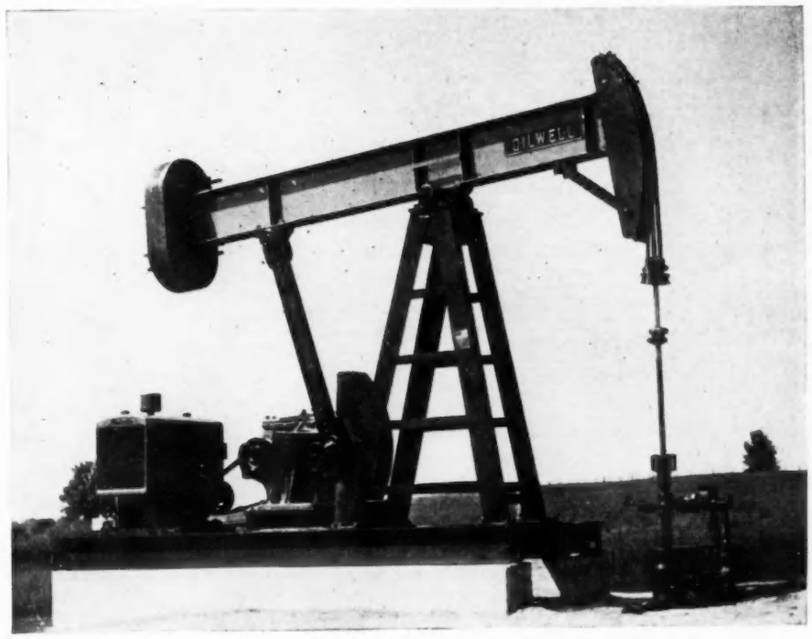
Packing
CRANE PACKING COMPANY

A plastic packing with tape back reinforcement vulcanized to its outer surface, providing a non-frictional surface to bear directly against the moving part, has been announced by Crane Packing Company, 1800 Cuyler Avenue, Chicago.

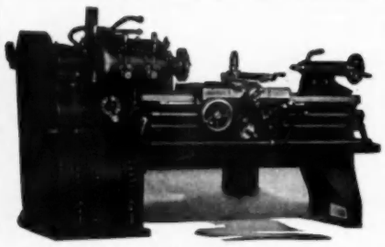
Crane's Plastic Packing

The packing is described as sufficiently pliable to be bent around small-diameter rods and shafts without fracturing or cracking, or to be formed into small rings without distortion. It is a dry-graphitized plastic packing of long-fibre asbestos, anti-frictional metal particles and binders. It contains no oils that may be driven off by heat or pressure, and is described as flowing easily under gland adjustment.

Designed for centrifugal and rotary services, including centrifugal feed pumps, low-pressure steam rods, valve stems, centrifugal pumps, rotary pumps



Oil Well Supply Company's SC-12 Pumping Unit



The Boye & Emmes Timken Bearing Engine Lathe

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Fairfax 1466

Standco
NO-SMOKE

STANDCO BRAKE LINING

Is the driller's best friend because it makes the easiest brake known and "feeds off" evenly while drilling. It never scores brake rims. See Page 2100 Composite Catalog.

Standco Brake Lining Co.
HOUSTON

REGISTERED PROFESSIONAL ENGINEERS

Air • Gas • Water
REPRESSURING
RECYCLING • PRESSURE MAINTENANCE
INSTALLATION • OPERATION

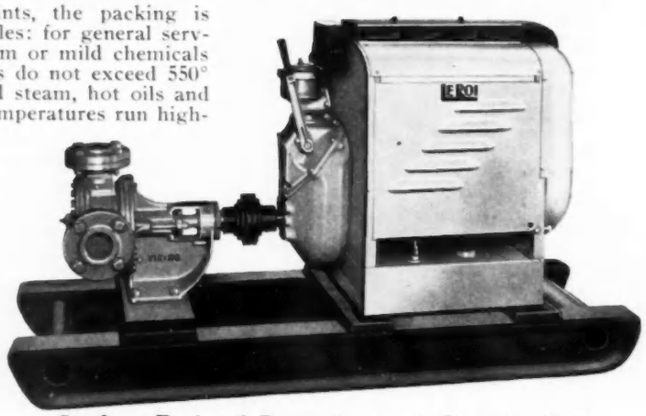
PETROLEUM ENGINEER
JO H CABLE
WICHITA FALLS TEXAS

GAS MEASUREMENT • PERMEABILITY
COMPRESSOR PLANTS • POROSITY
BOTTOM HOLE PRESSURE • SATURATION
GAS OIL RATIOS • RECOVERABLE OIL
CONTROL OF FLOW THRU FORMATION

REGISTERED PROFESSIONAL ENGINEERS

NOTES FOR THE Equipment Buyer and User

and expansion joints, the packing is available in six styles: for general service, air, water, steam or mild chemicals where temperatures do not exceed 550° F.; for superheated steam, hot oils and hot gases where temperatures run higher than 550° F.; for oils, petroleum distillates and solvents with temperatures up to 550° F.; for foods, fruit juices and edibles; for chemicals caustic alkalies and acids, and for superheated steam or gases where temperatures do not exceed 750° F.



Southern Engine & Pump Company's Pumping Unit

Each type is available in sizes from ¼- to 1-inch, graduated by sixteenths, in coils, standard-length spirals or in die-formed rings, or sets to stuffing-box dimensions.

Pipe Fittings

Grabler Manufacturing Company, Cleveland, has issued a revised 20-page reference list-price table on its line of Square "G" pipe fittings. It is designed to facilitate quick and accurate reference to its contents. Reference is simplified by tab indexing according to type of fitting. It includes five pages of helpful data such as standard weights and dimensions of fittings and pipe in various types and metals, supplemented by line illustrations.

Pumping Unit

SOUTHERN ENGINE & PUMP COMPANY

A pumping unit with pump and engine mounted on a single base for portability has been announced by Southern Engine & Pump Company, Houston.

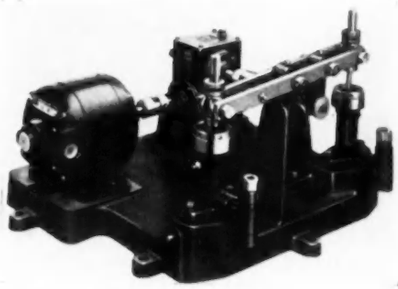
The pump is a Model 120 Viking, available in capacities from 50 to 500 barrels per hour, and featuring integral thrust bearing and revoluble casing. It is direct-connected to a gas, gasoline or Diesel engine, or to an electric motor by means of a flexible coupling.

The gasoline-engine driven pump is equipped with integral reduction gearing for correct pump speed, with an individual clutch for off-and-on operation.

Proportioning Pump

HILLS-McCANNA COMPANY

A proportioning pump designed for small capacity at reasonably high working pressures has been announced by Hills-McCanna Company, 2349 Nelson Street, Chicago. It is rated for pressures up to 1200 pounds, and capacities per feed are variable from a few drops per stroke, utilizing a 5/16-inch plunger, to 8 gallons per hour with a ¾-inch plunger.



Hills-McCanna Proportioning Pump

The actuating mechanism embodies a balanced walking beam type rocker arm, hardened steel roller contact points and Oilite type bushings.

Liquid ends are of plunger displacement principle and incorporate outside, vertical composite type check valves, which are available with either single or double suction and discharge. The check valve is designed to eliminate vapor lock and pressure drop through the check, as well as to promote handling of solids in suspension.

The pump is of constant speed, variable stroke type, with capacity variations effected by adjustable plunger buttons. It may be had in single, or multiple-feed assemblies, and standard units can be had with one, two, three or four independently actuated pumping units.

There's Never a Dull Moment When You Come to
"The Venice of Texas"
A SINCERE WELCOME AWAITS YOU
Comfortable Rooms · · · Friendly Service

WE SERVE THE BEST FOOD IN TOWN

The Plaza Hotel
SAN ANTONIO, TEXAS
TOM L. POWELL, Manager

WE OPERATE OUR OWN GARAGE

NOTES FOR THE Equipment Buyer and User

Du Pont Starts Construction of Neoprene Plant Addition

E. I. du Pont de Nemours & Company has started construction on a further addition to its neoprene plant at Deepwater Point, New Jersey, with completion scheduled for October, 1941. It will supplement a plant addition of the same size which has just been finished.

Together, the two additions will increase neoprene capacity by 1,000,000 pounds per month, raising production facilities to 1,500,000 pounds per month, six times the capacity available in the summer of 1939.

McKenna Names United States Steel Export for Foreign Sales

McKenna Metals Company, Latrobe, Pennsylvania, has announced completion of arrangements under which United States Steel Export Company will sell Kennametal tools, tool blanks, drawing dies and wear-resisting parts to foreign markets.

The arrangement does not affect a sales agreement in effect with George H. Alexander Machinery, Ltd., Birmingham, England, who have the British patent rights to Kennametal and are the sales agents for Great Britain and British possessions; nor does it affect the manufacture and sale in Canada, which are carried on by Kennametal of Canada, Ltd., Hamilton, Ontario.

Schlumberger Perforating Service in Mid-Continent

Schlumberger Well Surveying Corporation has announced extension of its gun perforating service to Mid-Continent fields. The company's Mid-Continent offices are located at Oklahoma City and Wichita.

Tubing

Summerill Tubing Company, Bridgeport, Pennsylvania, has issued an 8-page bulletin on "Taking 'Specials' in Stride," featuring the company's facilities for runs of tubing to meet exceptional specifications. It is intended to show by example how the company functions to bring advantages of seamless tubing to users whose needs are not covered by ordinary mechanical stocks.

Hose and Couplings

Pennsylvania Flexible Metallic Tubing Company, 72 Street & Powers Lane, Philadelphia, has issued Bulletin 52-G, giving eight pages descriptive of its line of bronze steam hose and clincher couplings. The hose is offered in plain, wire braided and armor-over-braid styles, while the couplings are designed to permit full flow through joints.

Lathe Use

Gisholt Machine Company, Madison, Wisconsin, has issued Performance Data Sheets 62 to 65, describing representative metal-turning jobs performed on turret and automatic lathes, and giving an example of static-dynamic balancing on a Dynetric balancing machine. The metal-turning installation stories include operation sequence, feeds, cutting speeds, tolerances and machining times, and are illustrated by photographs and drawings.

Pressure Reducer

Foster Engineering Company, 109 Monroe Street, Newark, New Jersey, has issued Bulletin 10 describing its Type 39-Q1 and Type 39-Q2 pressure reducing regulators for steam, hot liquids and hot gases. The units, in single- and double-seated styles, are rated for initial pressures up to 2500 pounds, delivery pressures up to 1200 pounds, and temperatures up to 1000 degrees F.

Welders

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, has issued Bulletin 6-100, giving 12 pages descriptive of welders and their operation. Information includes dimensions, weights and ratings for various types of machines. Fourteen characteristic curves, covering all general types, gives data on welder operation. Complete gasoline engine speci-

YOUR ASSURANCE AGAINST
Leaky Connections
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RECTORSEAL on the threaded and gasket connections around your drilling rig quickly pays back many times its cost by the savings it effects. Leaks in mud, water, gas lines, and steam lines up to 400° F. are stopped immediately upon application to the threaded joint, yet the joints break out easily when dismantling time comes, thanks to the plastic, elastic mass formed by RECTORSEAL. Applied to both sides of your crankcase gasket, it stops seepage of engine oil.

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USE . . .
the Original Composition Valve Cups
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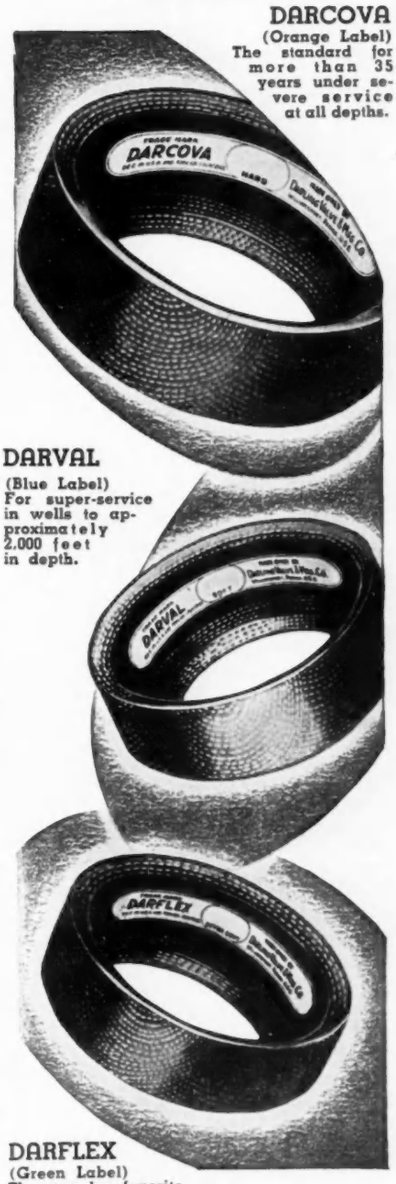
ELIMINATE FREQUENT RE-CUPPING

DARCOVA
(Orange Label)
The standard for more than 35 years under severe service at all depths.



DARVAL
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For super-service in wells to approximately 2,000 feet in depth.

DARFLEX
(Green Label)
The popular favorite for wells to 800 feet in depth.

Let them Protect YOU Against Production Losses and unnecessary Labor.

Manufactured only by

DARLING VALVE & MFG. CO.
WILLIAMSPORT, PA.

NOTES FOR THE Equipment Buyer and User

fications for welder prime movers are given, and optional and standard equipment is covered.

Flexible Tubing

Pennsylvania Flexible Metallic Tubing Company, 72 Street & Powers Lane, Philadelphia, has issued Bulletin 90 on its line of high-pressure flexible all-metal tubing. It illustrates construction of the product and gives tables showing sizes and specifications.

Heat Transfer

Thermek Corporation, 105 West Adams Street, Chicago, has issued Bulletin 440 on "More Heat Transfer per Foot," describing how the company's integrally spined extended surface tubing may be used to reduce size, weight and cost of heat-transfer equipment. Tabulations of overall heat-transfer coefficients and product design information are submitted for steam blast coils, water coils, evaporative condensers, water-cooled Freon condensers, water-cooled methyl chloride condensers, instantaneous water heaters, oil- and gas-fired water heaters and boilers, oil coolers and heaters, water-to-water exchangers, convectors, kerosene heaters and coolers, and carbon tetrachloride condensers.

Pumps and Pump Parts

The International Nickel Company, 67 Wall Street, New York, has issued a 16-page booklet on "Practical Pumping Problems and How they Are Solved," discussing uses of Monel, K Monel and S Monel for pump parts in applications where there is need for high resistance to corrosion wear, pitting or scoring. Part of the book is devoted to a review of case histories. Performance data is given on pumps in applications which suggest how savings may be made in maintenance and replacement costs. Attention is given to choice of suitable materials for pumps handling a variety of corrosives in a wide range of industries, including power, chemical, municipal water supply, processing, railroad, steamship operation, and diversified fields.

Fabricating Stainless

Ingersoll Steel & Disc Division, Borg-Warner Corporation, 310 South Michigan Avenue, Chicago, has issued a new edition of its booklet on "Manual of Welding and Fabricating Procedures for IngAclad Stainless Clad Steel." Its 16 pages provide a new presentation with revised text and diagrams illustrating welding and fabricating procedures. Improvements in technique to provide maximum strength, corrosion resistance and ductility in welded fabrication have been emphasized. The manual includes discussion of forming, bending, welding, heat-treating, cleaning, grinding and polishing of stainless clad steel, and a chart showing corrosion resistance of two types of IngAclad steel to a list of acids, alkalis and other corrosive liquids and materials in common usage.

Cable

John A. Roebling's Sons Company, Trenton, New Jersey, has issued a catalog on "Rubber-Covered Wires and Cables—service Entrance Cables." Illustrated, it describes strandings, insulations and coverings; rubber-insulated building wires; service entrance cables, and thin-wall building wires and cables using both rubber and plastic compounds as the insulating stock.

Safety Tools

The Beryllium Corporation of Pennsylvania has issued an 8-page bulletin on its line of beryllium copper safety hand tools, marketed under the trade name, Berylco. The tools are described as possessing sufficient hardness, strength and toughness to stand up in severe service, yet providing a safety factor against sparks that might cause an explosion.

Floor Furnaces

John Zink Company, 4401 South Peoria Avenue, Tulsa, has issued an 8-page booklet on its line of floor furnaces. The units, which employ one-port type burners and operate on natural or butane gas, are available in capacities of 25,000-Btu, 50,000-Btu and 68,000-Btu.

It's a Fact — Johnston

CRUDE OIL PRODUCED IN VARIOUS PARTS OF THE WORLD HAS A WIDE RANGE OF ODORS AND COLORS, AND VARIES IN QUALITY FROM NEARLY PURE GASOLINE TO SOLID ASPHALT. ODORS FOUND RANGE FROM THOSE OF THE ROSE AND MUSK TO ONE THAT WOULD SHAME A SKUNK. COLORS VARY FROM RED, AMBER, YELLOW, GREEN, AND REDDISH BROWN TO JET BLACK. UNDER REFLECTED LIGHT, SOME CRUDE OILS ARE FLUORESCENT.

BUT COLOR AND ODOR MAKE LITTLE DIFFERENCE WHEN YOU'RE DRILLING A WELL. WHAT YOU'RE INTERESTED IN IS WHETHER YOU'LL GET PRODUCTION OR NOT! THE JOHNSTON FORMATION TESTER IS THE PROVEN MEANS OF KNOWING – IN ADVANCE – THE IMPORTANT FORMATION FACTS ABOUT YOUR WELL. A JOHNSTON TEST IS QUICK AND EASY TO RUN, AND MAKES REAL SAVINGS POSSIBLE BY TELLING BEFORE CASING IS SET WHICH ZONES YOU DRILL ARE WET . . . WHICH ARE DRY . . . AND WHICH WILL PRODUCE OIL OR GAS. IT ENABLES YOU TO DEVELOP YOUR WELLS LOGICALLY AND MORE EFFICIENTLY, AND PUT ON PRODUCTION THE PAY YOU KNOW WILL BE PROFITABLE TO PRODUCE. USE IT IN YOUR CURRENT DRILLING PROGRAM.

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"Servicing California and Selling Exclusively Foreign"

FORMATION AND CASING TESTING — JOHNSTON

JOHNSTON Oil Field Service Corp.
5702 NAVIGATION BLVD.
HOUSTON, TEXAS
"Servicing Mid-Continent and Gulf Coast"

"WHY SET CASING BEFORE YOU KNOW!"

Squeaks from the Bull Wheel

Enough Is Enough

"Fellow citizens," said the candidate, "I have fought against the Indians. I have often had no bed but the battlefield and no canopy but the sky. I have marched over the frozen ground till every step was marked with blood."

His story took well till a dried-up looking voter came to the front.

"I'll say you've done enough for your country. Go home and rest. I'll vote for the other fellow."

Saturday Night

"What's the matter? Ain't the razor takin' holt?"

"Yeah, hit's takin' holt, but hit ain't lettin' go agin."

Conspiracy

He waggled his driver to and fro for several minutes, missed four swings, and finally managed to hit the ball about a dozen feet. Then he glanced up and saw a farmer who was talking across the field and who stopped to watch him.

"I say," he protested, "only golfers are allowed on this course, you know."

The farmer nodded, "I do know," he replied, "but I won't say nothin' if you don't."

One Advantage

Now you see the advantages of golf.

What advantages?

Well, you couldn't play tennis on a day like this.

It Works Both Ways

"That's a nice little boy," said the visitor, as young Freddie collected his scattered toys. "I imagine your mother has promised you something if you clear up the room."

"She's promised me something if I don't."

Repetition Required

Relish Maker—I have picked Walla Walla for our new factory site.

Friend—But why Walla Walla?

Well, it sounds like a good place to make chow chow.

His Viewpoint

There goes a fellow who seems to take the worst possible view of everything.

A pessimist, eh?

No, he's a candid camera fiend.

Sitting Back

"There's that fellow who sought for years to get a political job."

"Well, what does he do now?"

"Nothing; he got the job."

Well Recommended

Is the prisoner a known thief?

A known thief? Why, he'd steal the harness off a nightmare.

The Genius

"So Joe will make a fortune, you think?"

"Yes; he sells cellophane masks to keep children's faces clean while their mothers are getting ready to take them visiting."

Whereabouts Unknown

Where's the sergeant?

If the ice is as thick as he thinks it is, he's skating. It it's as thin as I hope it is, he trying to swim.

Heard in Court

"Can you give me an exact description of the man you saw?"

"Oh, yes; he was about average height, with very ordinary features and nondescript colored hair. He was wearing the usual sort of clothes."

Sounds Promising

What are the young man's intentions?

Well, he's been keeping me pretty much in the dark.

Not So Involved

"Well Willie, how do you like your dancing lesson?"

"It's easy. All you have to do is turn around and keep wiping your feet."

Ingenious

A member of a firm which makes novelties rushed into his partner's office with a rough model of something he had just thought of. It was pretty complicated.

"Look," he said; "I've got an ink-well, calendar, small clock, paper-weight, pencil sharpener—see. At the back of the calendar, place for stamps. Nice, eh? And look—this bronze dog is a fine decoration."

The other partner studied the contraption for a long time.

"It's superb," he said at last; but he added, sadly: "It lacks something. I don't know what, but—ah, I've got it." He pounded the table enthusiastically. "From somewhere should come music."

Pulling His Weight

The plump sailor was telling the talkative lady all about life in the navy.

"What sort of ship are you on?"

"Submarine, mum."

"And what do you do?"

"Well, mum, I runs for'ard and tips her when we wants to dive."

MORE MEN IN THE DRILLING-PRODUCING INDUSTRY SUBSCRIBE TO THE OIL WEEKLY THAN ANY OTHER OIL PUBLICATION.
BE SURE TO RENEW YOUR SUBSCRIPTION PROMPTLY

QUALITY ELECTRIC STEEL CASTINGS

Do you know that DEDMAN

ELECTRIC STEEL CASTINGS

. . . save Machinery Losses, hold the enormous pressures of wells in high pressure areas, win and hold customers for manufacturers of OIL FIELD EQUIPMENT?

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FOUNDRY & MACHINE CO.

HOUSTON, TEXAS

"You need quality Castings . . . quality demands DEDMAN Castings"

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*Westinghouse Electric & Manufacturing Co. —
*Wheeling Machine Products Co. ..... —
*The Wheland Co. ..... —
White Plaza Hotel 64
Wichita Engineering Co. ..... —
*Wickwire Spencer Steel Co. ..... —
*J. H. Williams & Co. ..... —
*Wilson Manufacturing Co. ..... —
*Wilson Supply Co. ..... —
Witte Engine Works ..... —
*Worthington Pump & Machinery Corp. .. —
Wyatt Metal & Boiler Works ..... —

Y

Youngstown Sheet & Tube Co. 21